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Editorial

This issue of NMA magazine, which is devoted to the work of a range of West Australian composers and improvisers, aims to represent those whose work has developed primarily outside of the universities and conservatorium. To a greater or lesser degree most of the contributors have created work which has not been part of the mainstream developments of contemporary music in Western Australia.

What stands out in this work is its diversity. Some loose categorisation could be attempted (serial and post-serial modernism at one end, improvisation and sound art at the other) but this would leave out too much of what is important to be of any use. Certainly the contributors could not in any sense be seen as a school, nor do they possess common aims.

Evos Music, developed by Tos Mahoney and Lynne Mitchell over the past six years, has played a major role in the presentation and promotion of the work of nearly all contributors. In this light, the interview with Lynne Mitchell draws attention to the political and aesthetic dilemmas which plague the contemporary music scene in W.A.

This issue also presents an introduction to the work of younger composers such as Zac Laskewicz, Nathan Crotty and Rowan Hammond. The Evos Youth Ensemble, Young Creators' Camps and Improvisation Workshops have done much to foster the development of compositional and improvisational skills of young people, and have provided opportunities for learning, experimentation and performance which do not exist to the same degree in formal educational establishments.

It is hoped that this collection of articles will bring wider recognition to the work of West Australian composers generally, and sow controversy and difficulty wherever it lands.

-R.B.

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Metaphysics of wire music

Alan Lamb

1

If one stands quietly and listens on a still night before dawn in an open place far from the city, there can be heard a humming which throbs. I think it is a vibration caused by movements in the atmosphere, but I cannot be sure there is not a more primal explanation yet to be elucidated.

I have been told by the Austrian sculptor and theoretical meteorologist, Udo Wid, that the atmosphere, in addition to moving according to the infinite patterns of wind with which we are all so familiar, also oscillates at surprisingly high frequencies, some in the auditory range, and others which, though below the level of sound, can be felt. I imagine the vibrations could be generated by resonant frequencies, the planet beating with the air, for Earth has its own resonant frequencies well known to geophysics.

But also I speculate about a less obvious possibility. Udo Wid told me that the frequencies of atmospheric oscillation belong to a rather beautiful mathematical series. The audible frequencies which make the hum are harmonics of deeper fundamentals perceptible to the intellect but not directly to the senses.

The most remarkable thing is this. There is a band of frequencies in the series which is identical to the resonant frequencies of the electrical pulse generated by the brain during states of coherence, the delta (2Hz), theta (4Hz), alpha (7Hz), as well as other higher frequencies more difficult to detect. These frequencies are generated by the deeper and more ancient levels of the brain transmitting to the cortex, suggesting a common origin of atmospheric and neural oscillations from the beginning of evolution, at least since the origin of nervous systems. The connotations of this go deep assuming the brain is an ever evolving thing. The mind of the human being is more complex than any other known thing, with the possible exception of the cosmos itself.

On talking to local meteorologists, I have not been able to verify the assertions of Udo Wid, and it is possible they are simply fantasy. But even if that were so, should they be regarded as simply nonsense? He is after all an artist who comes from the sphere of science. His proposal could perhaps presage a new artistic creation, an internally valid proposal inviting speculation, the forerunner of all objective truth. This is the way new knowledge comes into being, from inner to outer. Much in science at first seems obscure, even mystical, until, with the passage of time it becomes common knowledge. I for example may simply not have encountered the scientific reports dealing with the matter. Udo Wid had been conversing with advanced theorists in the USA just before I met him. Perhaps he knew things still unknown to outlying practitioners of meteorological science.

My own intuition had already alerted me to the possibility of high frequency atmospheric oscillation since first observing that telegraph wires may sing like choirs in the absence of wind, and sometimes not sing at all despite apparently favourable winds, as if there were a resonance with something else.

2

It should be easy to demonstrate atmospheric oscillations simply by filming the movements of soap bubbles or dust motes floating in the air using stroboscopic illumination. I have not done this. To have an explanation too soon can adversely affect the artistic evolution of an idea. To prove that the hum were due to atmospheric oscillation might be to risk closing off a path of curiosity to a yet more beautiful and mysterious dream. Knowledge grows like a tree; wisdom is all trees. I wonder if atmospheric oscillation is sufficient explanation. I speculate on other more primal rhythms from which arise all structure. I think of the many who speak of the concepts encompassed by the symbol *om*. They speak of vibration, with which I resonate(s).

3

I make this confession as one who has been a research scientist for half a lifetime, but it is not inconsistent with the desire to discover; it is simply that some things are best discovered by imagination and not by dissection as is the practice of the common scientist. The shadow of the objective statement carved from possibility by the sword of reason is the destruction of dreams, once potential, now impossible.

Art *cannot* make objective statements, thus within its mighty realm all dreams retain validity. Art is creation not understanding. I therefore prefer to imagine the many possible origins of the hum, rather than dissect one single cause. The delicacy of intuition is all too easily entombed by the intellect, and intuition tells me that the meaning of the hum must be nurtured with utmost care. It is like a cathedral of glass, which one hammer blow might shatter, but in longer time it flows like melting ice.

4

To nurture is to be like the river guiding the waters by simple gravity to the sea. Where sea meets sun, light tongues whip molecules by the billion to boil and make mists and conjure dreams, a vision in the backdrop of night's sky, daggered darkness of my

folded blanket, the patterns of my brain.

5

The hum is low pitched, centering on the frequency 55Hz (A_1). There is also varying audible power in the harmonic components A (110Hz) and another frequency varying between 230 to 250 Hz. The interval A var C means the hum is a chord. The chord A - C is a yearning chord[1]. Thus it is that the intervals formed by the oscillations of the atmosphere (or whatever) impart a strange affect upon the hum; it is both disturbing and reassuring. One may listen hour upon hour as it weaves its ever changing hymn.

At first I thought my own ears or brain were making the sound, just as when, as a young child I heard the faint ringing of the brain in my head before dawn and imagined incohate entities threatening to well out of my ears from within and devour me. As I grew up, I came to understand that such sounds were a manifestation of one's own inner being, at least so I have been led to believe. The hum has connotations similar to the ring. But in adulthood, one seeks the opposite of the fearful realm of the child's imagination. One ponders the origin. What is its decipherment? If the ringing were able to destroy a child, what might the hum create? Has one the courage to listen?

I am drawn into thought patterns which I myself do not believe I alone could imagine. Since there appears to be a bootstrap between the mind and the hum I listen very carefully indeed. Some physicists say that the entire universe is bootstrapped, each part dependent upon all others for existence[2]. This sets the foundation for a kind of solipsism, symbolised in the myth of Atlas and rejected by many philosophers unable to perceive that solipsism can extend beyond the terrifying aloneness which claims the cosmos is merely a manifestation of one's own mind. Even the most hardened atheists have found difficulty facing such an extreme position. First, to suggest the cosmos is entirely of one's own making compels the necessity of an unbearable responsibility, for not only good, but all evil must come from within one's self; and second, the simple fact that one simply cannot die is surely the most exhausting thought ever conceived. Solipsism cannot be refuted, and so the irrational is brought to bear: solipsism is rejected because it is 'repulsive'[3].

But perhaps it is better to gaze with more courage into the darkness and see past the narrow confines, for solipsism, if travelled far enough like a tunnel, opens into a majestic vision where reality is creation by an infinity of viewpoints, each singular and calling itself "I", from the atom to the human being. The vision is the one of all dreams, all possible. Yet there is only one cosmos; the shape of consensus, a fractal, in which all is possible. If I agree with you, the shape emerges. This is the cosmos of *collective* solipsism. Its beauty arises from its malleability. Since consensus can be altered simply by a change of mind, an act of prayer or the play of a child, anything becomes possible.

6

I discovered that the hum does not come from my brain or ears, though I thought that would be the case because I had heard of cochlear frequencies, sounds made by the auditory membranes vibrating like tiny speakers driven by neural impulses generated from within the brain. It follows that the sounds could have been a reflection of the inner state of the brain, the physical manifestation of the ringing heard by the mind which so frightens and excites the child.

7

Break for a fart. Who knows? could be the beginning. Weather men say the butterfly may cause a hurricane. It was after a piss in the bush that I pulled the Faraway wires onto my ears and heard for the first time the great choir.

8

I proved the hum came from outside me because I could not hear it when I sat in my car with the windows up against the cold.

9

On my trips away into the countryside to record wire music, my car was my sound recording studio. Most times I went to Faraway Farm which belonged to Elizabeth and Hill Venn, my sister and her husband. Faraway is in a remote part of Western Australia bordering on the heath wilderness of the Great Southern near Fitzgerald, 500 kilometers east of Perth. The landscape is high and sparse and undulates like a quiet ocean swell. It is close enough to the ocean to smell Antarctica. There was a half mile of abandoned telegraph wires running beside the farm, and I turned them into a gigantic musical instrument which could be played like an organ.

10

The wires sing, and I listen. Nature and all its rhythms play upon the wires, and I, with the patience of the fisherman depending on the catch for the welfare of his kindred, play also to the rhythms of the wind and time, the sun arising, and the moon above the rainbow as it sets in spring before the coming cycle of the summer flower. I hear the trees and join in hymns of ceremony, each listening to the other's song and responding. This is how the wires are played, the essence of the wind organ. Magpies come and warble, and many other little creatures have their say, like the spider tapping mandibles in chatter with its mates in hidden places among the glass insulators flashing in the sun, turning violet with the passing seasons.

I called it the Faraway Wind Organ. The name implies the connotation of voice or vocal cords, a singing organ for the wind.

Intuition demands a connection between the patterns of the winds which make wires sing, and the hum, and so when I began making music on the wind organ I knew already that wire music was to be like the hum amplified and lifted into the range of a choir.

One morning, early, when the stars are at their brightest, I could hear the hum oscillating as usual among its infinite harmonies. No wind. The light of dawn appeared first as a hue in the east and the wires began to sing. They sang in harmony with the hum. The wind, which had lifted to the heavens to be with Aeolus during deepest night, descended with the rising blaze of sun. The wires, hammered by the

blow-torch photons, slackened and released the singing into all possibilities of freedom's realm. Hour after hour, day after day, they sang their infinite song.

Perhaps it is the wind blowing over the star-cooled air which clings to Earth which makes the hum, perhaps not. There must also be cosmic winds, of substance like cosmic rays and gravity, perhaps of spirit too. Consider for example: I was there to hear when the wires sang; was that an accident?

Is wire music discovery or invention? If invented, then it is not the I as one normally understands which invents, but perhaps more correctly, that unimaginable thing heard in the ringing ear. But also there must be discovery, the thing directs the gaze, and the child delights in the new-found toy[4].

11

The power of aeolian music has been known since antiquity, and it has inspired the greatest prayer. There were aeolian harps at the temple Apollo. To the aborigines, aeolian sound was the spirits singing. Percy Grainger, inspired by telegraph wires,[5] devoted an enormous part of his life to his quest for free music (which he saw as a path to perfect music).

To me, wire music is the purest music, for it obeys the absolute laws of physics, including those of chaos which allow an infinitude of diversity within ordered systems. Wire music engenders imagery in the mind. The image in the mind and the vibration of the wire are each expressions of the same harmonic laws of nature derived from the deepest fundamentals, and are thus indivisibly linked. Naturally there are discontinuities. These are the boundaries of differentiation, I and thee, them and us, he and she, life and immortality. It is easy with the rational mind to place wire music outside oneself, but it is disconcerting to find regardless, it penetrates within. The child reacting in fear, may shut it off and roll his head from side to side to keep the incohates at bay. Others may listen and hear the many voices, the voices of the spirits as th old boong always said. It is easy for one's being to grasp that being alone is terrible, it is difficult to be told you are all together, one, and only one.

The old boong nodded at the white man. Where his gaze met the eagle's went the white man's bullet. A sadness comes over the land, and the wires sing of it.

12

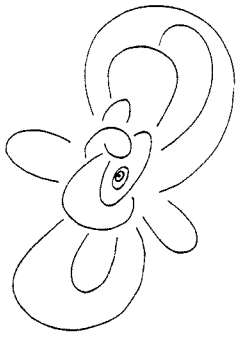
One day, it was stormy, gusty squalls from the Southern Ocean, bursts of rain. The music was filled with shrieks of wind. The sun was setting. A rainbow appeared, an arc complete from end to end. I left my recorder recording and ran across the open plain into the rainbow. As the sun set, it reached over my head and vanished in the shadow of the curve of Earth. When I returned in the deepening twilight to my little recorder, so out of place in this elemental landscape, I found the wind had blown the wires into new configurations and broken contact with the sensors. So I never heard what song was sung, but in my mind I have a memory of a rhythm. From that night the wires sang a hymn which continued unbroken for 3 days. The evening of the rainbow was April 25th 1983, Anzac Day, and the composition made from the three days of recordings was called **Last Anzac**.

13

Recording wire music is like fishing: always waiting for the 'big one'. When I first began recording I had in mind the memory of my first encounter with wire music as music, not simply as a strange sound. I was travelling in Mull off Scotland, and had pulled off the road after dark, a grassy space between the road and sea. During the night there was a sound from outside the van. At first I thought of extra-terrestrials, then came the music, ethereal as I had never heard before. I knew of telegraph wires from my childhood, from a nanny who spoke of them as the sounds of all the world. But these sounds seemed too perfect to be just the sounds of wind on wires. I lay awake all night listening to the symphonies. In the morning, there was indeed a telegraph pole beside the van. It had sung a music I would never hear again, like the silver flash of the ancient fish, never captured though legend has it that the best have tried. Wire music, like life itself, is never repeated. That is the law of the strange attractor.

14

The strange attractor is the heart of chaos theory, that theory which allows all possible dreams to be realised. An attractor is a point about which oscillates some field. An example from atomic physics is found in hydrogen, the most simple of atoms, in the path of probability of the position of the electron about the proton:



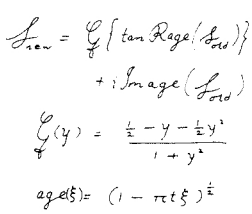
Example 1. Artists sketch of a few arbitrarily chosen orbits of an electron around the hydrogen nucleus.

In a simple attractor, the number of possible paths is finite, but in a strange attractor, not only is the number infinite but each path is unique. Strange attractors though infinite in detail are confined within a boundary which has a form. An example is the living cell, another is the dance of the honey bee which shows the way to find the distant flower, so too is the electron's path. Some strange attractors are unbounded, the cosmos is one as far as is known. Some unbounded strange attractors can be described quite simply. A good example is the Greenhalgh equation[6] (example 2).

A cross section at (t=5/2) displays the remarkable beauty and complexity of the attractor described the equation. This section we call the Ram (Aries, example 3).

Other sections of the Greenhalgh equation show an infinite variety of forms. What is surprising is not simply that the range is infinite in number, but infinite in shape. The attractor contains maple leafs (a fea-

in shape. The attractor contains maple leafs (a feature common to many strange attractors such as the Mandelbrot set), a row of dancing girls, a french poodle, a beating heart, singularities by the billion, and so on, very much as one sees in the real universe. Going back to example 1, what a start to find the unexpected grin! On closer examination, one can see an emergent, a form which could not possibly have been foreseen by the artist as he drew his squiggle of a hydrogen atom. In this case the strange attractor is a joke.



Example 2: The Greenhalgh equation.

But there is another surprise, and this is no joke, for the mere fact that a joke is possible means anything might have possibility, somewhere a niche protected from all other orbits, for who could imagine an accident less probable than drawing an atom with a laugh! On reflection, who would wish to deny the inevitability that atoms should possess a sense of humour[7]?

Atoms make cells, cells make people. When a person has a flash, what is its source when it bursts forth exploding into uncontrolled mirth? Some wise guy makes a crack and all the world laughs. Ask him and he won't know what the heck!? Some neuron's fired and set off such a ripple that soon his brain is filled with the laughter of his joke and he spills it out in a blurt like this:[8] ha ha...hah hah hee he he hee hee hee hah ha hee hehe hee heeheee heeeeeeeee heeeeeeeeee heeeeeeeeeeeeee hehe heeeeeeeee heheeee ho hoh ho hoh hah hah hah hah hah haah haah haa.

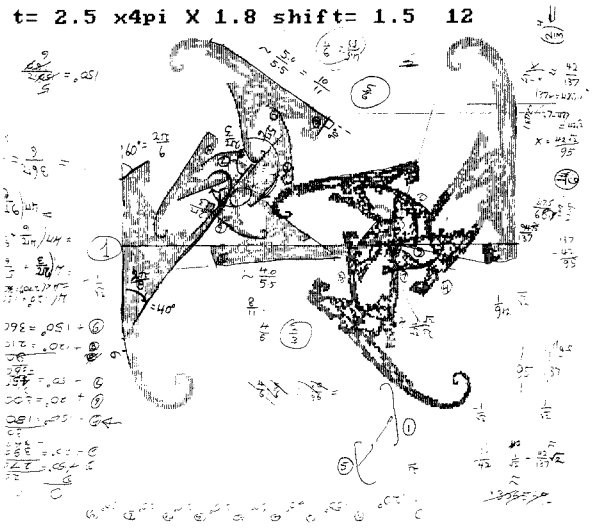
Bit like wire music. The atom is a sea of photons spitting signals across time as if it were a window made from vacuum. And what makes the atom laugh? A tickle from a light beam across the galaxy intent on mischievous doings? And where do you think the photons get it from, hey? Imagination is the arbiter, both first and final, to choose whatever is the wish, to experience or to imagine. If I imagine that any path is possible, is this not the truth? This in poetic terms, is the consensus of today's mathematicians. In chaos theory, no path is ever repeated, each path is unique, and the number of paths is infinite.

15

There is a sense in which the dimension of possibility is the dimension of time (or more correctly, phase[7]). Not only does this explain how immortality, as defined within the framework of the cosmos, is a prerequisite of being, it assigns the correct meaning to the concept of death. Death is not to cease to be, but to change and farewell past forms. This leads to the insight that all being occupies and flows along all paths. It means every individual is a point (singularity) being swept along the entire manifold of possibility by the forces descended from primal gravity, the opposite of light. It means that all individuals are connected within possibility's continuum. It means all possibilities must be experienced by every individual no matter what form that might take, be it mud or slime. Since the cosmos is an unbounded strange attractor, the path of life is infinite. Sometime I must be you, and you me, same as the serpent at the root of the tree.

16

It is with these thoughts that one hears the singing wires, for they induce such imagery. The wire never repeats a pattern of vibration though patterns cluster in classes determined by the structure of the strange attractor. This engenders a fundamental principle of composition in wire music: compatibility between classes is prerequisite to harmonic blending. There is no way of judging compatibility other than with the mind, thus the aesthetic of wire music is subjective, as is true of all art, as alluded to above.



Example 3: The Ram.

17

The attractor described by the vibration of the wire can be visualised. It is the path of the wire in space. As it vibrates, its shape oscillates in waves away from the straight line it occupies when silent. It fills a cylinder concentric with the wire. The cylinder is a partial dimension and the shape of the wire describes a dynamic fractal. In cross section it appears as a shifting lissajous figure in the plane perpendicular to the wire. When each ear is presented with the sounds generated in each of the two orthogonal vectors of the plane, the attractor is transformed by the brain into a structure distributed in an imaginary acoustic space. It has a synesthetic quality which the brain transforms into a visual imagery akin to a dream. Thus the sound of a singing wire is like the sounds of life, a rustle in the wind, a sigh from the casuarina tree, magpies warbling in the web of magpies, child yodelling top voice to friends up the valley, leaping in delight at the answer. Each moment is unique, an event unto itself.

At times one hears the rhythms of Beethoven, the hymns of Bach, at times a song, a snatch of melody

(continued on page 30)

Two pieces and an overview

Lindsay Vickery

This article deals mainly with the technical aspects of two works: **Blackpool Tower: Elegy for John Lennon**,* and **Leo Szilard**. My range of compositional strategies is reasonably large, including a variety of conventional precomposition, collage, texts and cut-ups, but the method of working illustrated in these two pieces probably creates the best picture of how I have assembled my pieces so far.

Speaking generally, my work falls into two categories:

(i) notated works involving precomposition in which a strong 'sound image' is present before any realisation begins, and

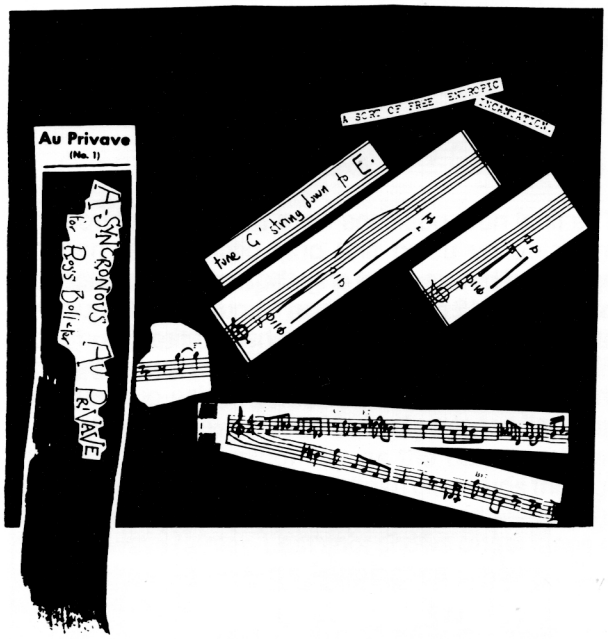
(ii) more spur of the moment 'concept' pieces, musical 'readymades' that may take almost any form.

These pieces are almost by definition dissimilar in working method and execution.

The technique that recurs most frequently is Collage, which appears in a number of different ways: firstly with quotations from other works, where the quotation defines the formal structure (Thelonius Monk's **Round Midnight** in **Round Round Midnight** from **Wind Trio** and Charlie Parker's **Klaun Stance** and Alban Berg's **Four Pieces for Clarinet and Piano** in **Savoy Trifle**); using it as a starting point or channel for new material (Mozart's **C minor Octet** K.388 in **Octet in Three Movements**); or use of direct quotation to allude to works as part of the programme of the piece (Corny patriotic American songs in **Twilight's Last Gleamings,** and The **Moonlight** Sonata and **Because** by the Beatles in **Blackpool Tower: Elegy for John Lennon**): and secondly where collage techniques are applied to original work.

Collage techniques (example 1) appeal partly for their ability to frame an idea musically, but mostly because they imply a view of time as fragmented, circular and irregular, especially when applied repeatedly to material.

Blackpool Tower: Elegy for John Lennon uses direct quotation of two pieces, the first movement of Beethoven's **Moonlight** Sonata, and The Beatles' **Because** from *Abbey Road*. **Because** was inspired by Lennon hearing Yoko Ono play the Moonlight Sonata. Both pieces share a number of characteristics (C Sharp minor, the arpeggio figurations, chord progressions, etc). The intention was to create an environment where the musical images would flow freely, subconsciously, against a harmonic background where the domination of the texture by one would always be undermined by the emergence of the other.



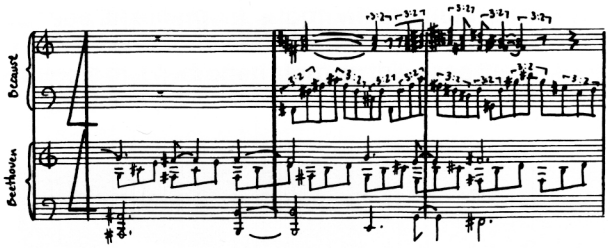
Example 1. Composer Ross Bolleter was travelling to a gig when Charlie Parker's Au Privave *leapt into his head. Entering the club he walked in on* Au Privave *in full swing.* A-Synchronous Au Privave *(above) is intended as the entropic antidote to Bolleter's synchronous event.*

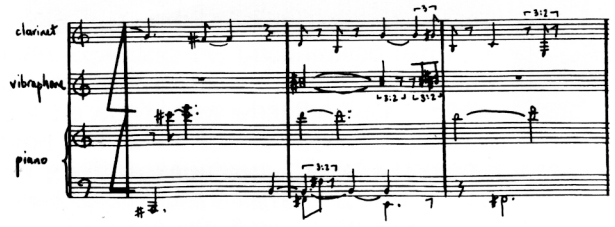
Blackpool Tower was partly prompted by the use of collage in Beatles' songs that I had grown up with (**Revolution 9**, **I am the Walrus**, **Tomorrow Never Knows**, etc). It takes both pieces as *sound objects* and 'mixes' them to create an elegaic meditation on Lennon's tragic and untimely death. The title comes from a Lennon poem:

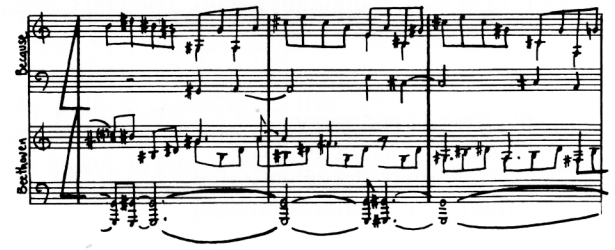
> However blackpool tower maybe
> in time they'll bassaway
> Have faith and trump and BBC
> Griff's light make bright your day.
> Amen (and Michaela dentist)

The **Moonlight** Sonata and **Because** are theoretically 'playing' together throughout the entire length of the piece. However, for most of **Blackpool Tower** they are shrouded in various ways, only drawing into focus together in the five central bars.

At the opening of the work, both pieces are reduced to their constituent twelve pitches, dispersed and unpulsed. Gradually the pitches are assembled using a method of filtering, to allow the notes to settle into a recognisable framework. In order to keep the two works running together proportionally, a mock up of the original was made where

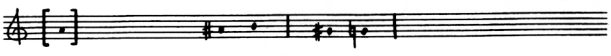
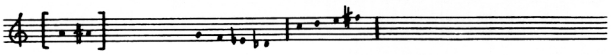
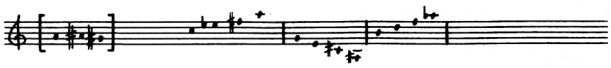
both pieces were scored with their respective rhythmic notations reversed - ie the Beethoven, originally scored in quaver triplets is notated in duplet quavers and **Because**, in duplet quavers is scored in triplets. (example 2).

Example 2

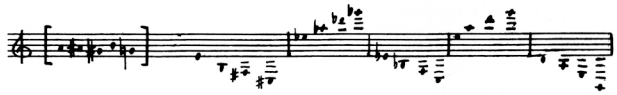
The final note positions were then 'filtered' from the mock up by using first only pitches that had not appeared before, then only the first appearance of a pitch within 12 quavers, then 11 quavers, 10 quavers and so on until both pieces had entirely surfaced. There was of course also subjective tampering with the portions that were allowed to rise out from this gradually coalescing background (example 3).

Example 3.

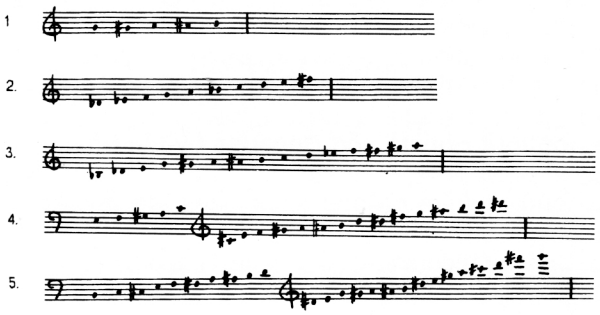
The five bars in which the two works simultaneously draw into focus are the passages in each work that are the most similar musically. For the first time in the work they appear 'quaver equals quaver'. The Beethoven scored in quaver triplets and **Because** in

Example 4.

quaver duplets are quickly pulled out of synchronisation - out of focus again (example 4).
The final bars then further fragment the two pieces as they draw towards the **Blackpool Tower**'s inconclusive conclusion.

In contrast to the pieces involving quotations from other people's music, works like **Leo Szilard**, **The Stairways of Sleep**, **Vo** and **Ed Teller Remembers** (all parts of a music theatre work around Hungarian Physicist Leo Szilard), rely for the most part on a large amount of pre-compositional' work. The shape of the materials generated 'pre-compositionally', are intimately related with the shape of the work imagined before I begin. The basic pitch materials for these four pieces were created in this way.

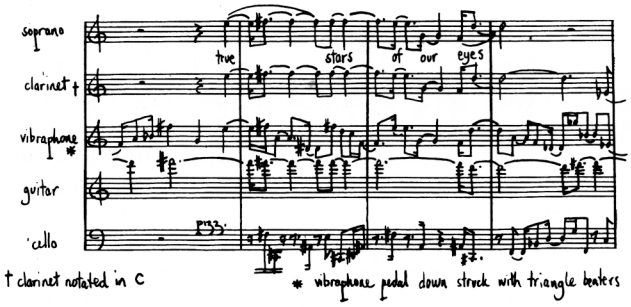
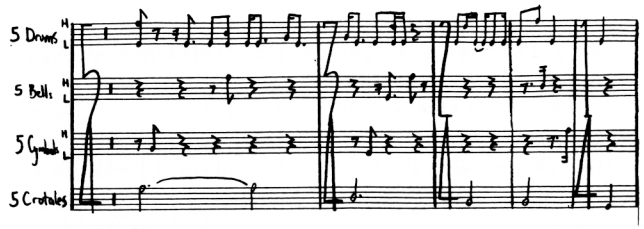
One central pitch - two ascending semitones and two descending semitones:

Two central pitches - four ascending tones and four descending tones:

Three central pitches - four ascending minor thirds and four descending minor thirds:

Four central pitches - four ascending major thirds and four descending major thirds:

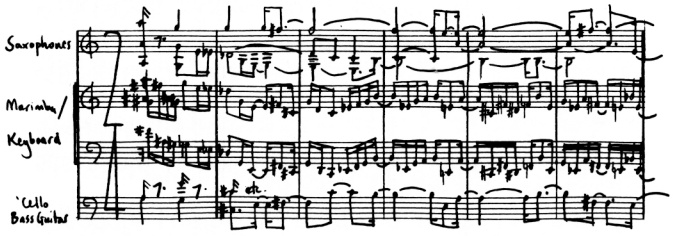
Five central pitches - four ascending fourths and four descending fourths:

Example 5.

The following pitch collections are generated:

Example 6.

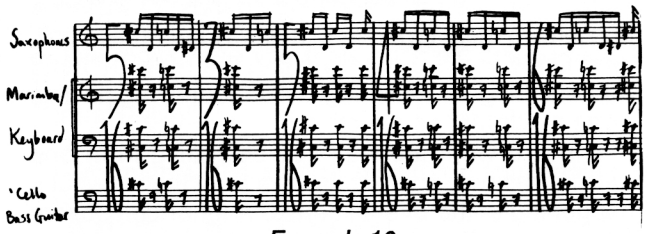
Individual pitches are then chosen using a number of different means, for example subjective choice, repeating number series or random numbers.

In this section from **Vo**, pitches are chosen from the second pitch collection using the repeating number series 5,3,2,2,1,4,4,5,1 (numbers taken from the formal layout of the earliest piece in this series, **The Stairways of Sleep**). Rhythm likewise is derived from this number series (example 7).

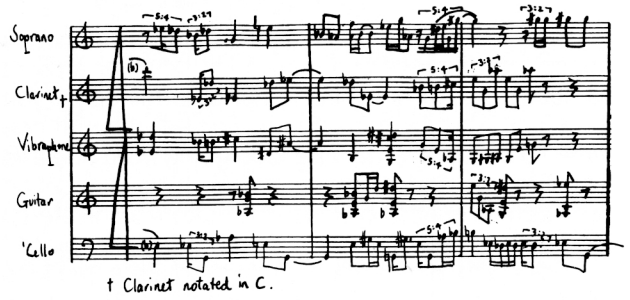
Other rhythmic strategies include use of a number series as straight duration (**Ed Teller Remembers** and **Vo**), example 8.

Example 7.

Example 8.

Segment Sizes (**Leo Szilard**).

Example 9.

Time Signatures (**Leo Szilard, Ed Teller**).



Example 10.

Tempo Ratios (**Vo, Ed Teller**).

Example 11.

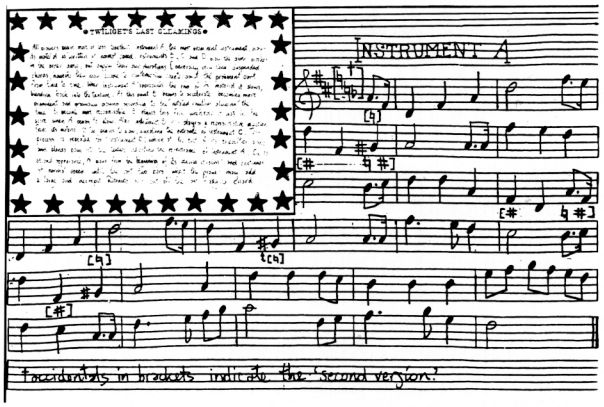
At the conclusion of the pre-composition/composition process a piece may further undergo a second cutting (post-composition?) in which the composed work becomes a 'sound object' for further collage manipulation.

These two glimpses into some of the techniques I use give some impression of the ideas and processes in my work.

* Blackpool Tower *is included on NMATAPE 9.*

Exhibit A: Twilights Last Gleamings

Music for the final scene of a film proposed by William S. Burroughs in his novel **Exterminator.**
One of the instrumental parts:



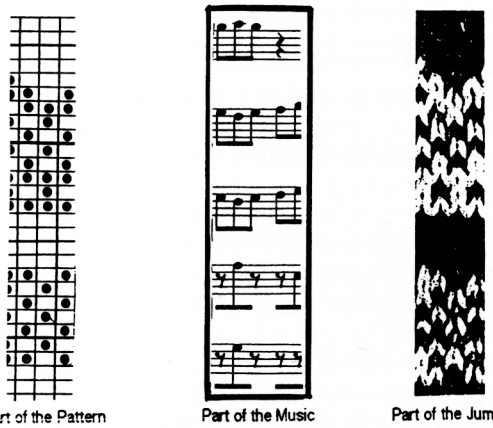
This concerns a conspiracy to blow up a train carrying nerve gas. The conspiracy fails but its mission succeeds posthumously when a truck driver on L.S.D. crashes a load of high octane gas into the train, releasing nerve gas across east coast U.S.A.

"Film closes with **The Star Spangled Banner** played softly in a minor key as the camera shows aerial view of dead cities with flash close-ups through the Telstar. The camera is farther and farther, and the music always fainter. Last shot shows ghost faces of conspirators against a gleaming empty sky. They wave and smile."

This piece may be viewed as an elegy for what is great in American Culture.

Exhibit B: Double Concerto for Knitters and Ensemble

A minimal piece based on the 'Fair Isle' knitting pattern.



Part of the Pattern | Part of the Music | Part of the Jumper

Note: This piece requires soloists of the highest calibre. For the premiere, the Concertina was performed by Johanna Benschop (a formidable Dutch woman who's rendition of the *Alternating Peanut Stitch* was both decisive and emotive) and Visual Artist Angela Rossen.

Interview with Robert Muir

Ross Bolleter

R.B. Could you tell me something about your working process?

R.M. I find it a problem trying to work with a finished product in mind. I have attempted this a number of times, such as in the **Snore Piece (The Musos Life)**, a piece which actually began with a score - but this sounded more like an exercise in sound manipulation rather than a finished piece. It seems that the best results come from finding sounds that go together naturally, rather than calculating these things beforehand. The source of a piece is so difficult to arrive at, there isn't a set process for my sound works or tape manipulations.

R.B. How did you actually begin doing sound works?

R.M. I was volunteering at 6UVSFM (the University of Western Australia's student radio), putting together sponsorship announcements for local businesses, and we didn't have anyone qualified in sponsorship production, so we all had a go at it. In those days we had no multi-tracking facilities so we had as many machines and turntables as possible set up to record directly to stereo tape. We'd set up all the sound effects and voice overs and so forth, and we'd fire off these machines at the same time. It then came down to cleaning up the glitches, and we'd be recording again and again and again. Eventually you'd get dulled to the repetition of winding back over a thirty second piece so many times that after a while it became sound rather than information as such. At that point it could sound like almost anything. Also, listening to these promotions backwards and at variable speeds I came to enjoy the different possibilities of sound.

I also used to record a lot of lectures and interviews and would have to edit these down. This was usually tape to tape editing rather than splice editing because we couldn't afford the tape, so I was always working with a number of machines and gained a lot of practical experience in this way.

When editing tape to tape you could, for instance, record a cough as many times as you liked, and it was possible to get into some quite humourous trickery with the interviews. Sometimes things went to air by mistake, for instance an edit would go wrong, or all the breathing would be edited out so it sounded like someone delivering a lecture was not actually breathing... It sounded ridiculous and could be quite disconcerting. We would also get a lot of sample records from the record companies which nobody else wanted. Yet there was a lot of interesting material there for me, and so my first contact with experimental music actually came from this so-called 'worst record' collection!

R.B. Did you ever make use of the advertising material for your own purposes?

R.M. A lot. Not much went to air though, and I didn't think of these things as compositions as such. I should also say that I never considered myself a musician or composer, so when you ask if I ever created 'works' it's not a conscious thing for me. That's why I find it easier to collaborate with other people because if it's somebody elses 'work' or project then I can be part of that in a creative way. I enjoy working like that, but I find it really works best when the creations happen spontaneously. I wouldn't presume that what thrills me would necessarily thrill anybody else.

R.B. What techniques of tape manipulation have you used in past works, and which of these still engage you strongly?

R.M. As I said at 6UVSFM we weren't supposed to cut up tapes, so dubbing became a standard technique. This required two machines which I didn't own, and I began to use splice editing in my own work outside the station. Repeating sounds for instance and joining them together in this way became important. Once you are manipulating the reels by hand and listening to the 'magnified' sound, again this gives a different perspective.

R.B. To work the way you do, going from one detail to the next, there must be a lot of trust in what's happening in the overall sense. A lot of composers work with a strong conception of the overall piece, others work minutely from step to step. This must mean they have a sense of trust in the overall process. Does this seem applicable to you?

R.M. It's not so much a matter of trust, but more a matter of tolerance by the listener, whether a piece is successful or not. This is not determined by you personally but by the listener. For instance, at one time I'd set up a large tape loop going from one end of the room to the other, hanging from the chandelier, across the venetian blinds to the bottom of the stereo and through the couch and so on. We'd also placed a brick on an old harmonium to produce some kind of chord, and put on a record which had a closed loop as the last track, as well as generating feedback from a guitar leaned up against its amplifier. When we listened to this from a distance (like down the hall) it changed as much as we wanted it to change, as it were. It became quite listenable because we'd used more or less traditional instruments, like the stereo player and so forth. You could hear much worse down at the local pub, for instance. In this sense you can't presume that it's going to come out one way or another just by considering the materials.

R.B. How do you find working in live situations,

interactively with musicians?

R.M. I don't like it. I've seen people work in this way, like Ernie Althoff or David Moss, but then I'm not a performer, and so I much prefer to watch these people rather than participate.

R.B. Are there any tape artists who have influenced the way you work? I'm thinking specifically of people who use tape as a medium.

R.M. Not really. Collaboration is a source of influence... I enjoy Ernie's work as I've said, like his tape **The Way I See It**. The idea of having on tape a series of instructions on how to destroy the tape, like "nail this tape to the front fence and see how long it stays there", or "play this tape every time you brush your teeth", "burn this tape" and so on. I love it. This has inspired me, I suppose, to 'play' with tapes. Mind/Body/Split I also enjoy very much, certainly Rik Rue and Jim Denley, who I find fascinating.

R.B. Are there other areas in tape technology which you would still like to explore?

R.M. Yes. Having experienced some of the possibilities of 'virtual reality', like digital sound, I'd like to move into this technology although it takes a bit of money. Here you're dealing with almost infinite threshold of sound, instead of having your soundscape framed by noise and distortion. Even in a simple stereo image you can hear direction - instead of left-right you can hear front-rear, up-down. This brings possibilities for more minimal ideas, and more ideas of exploiting the sound of our natural environment rather than creating soundscapes by exciting or picking up on strong sounds, or exaggerating sounds, or even by repetition of sounds. To record someone sleeping and getting a sense of the whole room, here you have such dimension by the quality of the sound, that we could call this a kind of 'virtual reality'.

R.B. Are you interested in superimposing different environments, the idea of multitrack environments and so on?

R.M. Sure. But also altering environments by introducing different elements, or whatever. But once you get to this threshold level you can produce some very subtle changes that could, for instance, alter your perception of space...

R.B. I liked very much your idea of the basketball game which is defined as an acoustic space.

R.M. That works on the same idea of miking up as accurately as possible a space such as a basketball court, where you would get a ball bouncing and feet running up and down the room, and so get a sense of the space. If you could reproduce that space by replacing the microphones with loudspeakers in a completely different environment such as a mall or whatever, if you could recreate the whole ambience of that gym, you would get the sense, by standing within that space, of being run over by a bunch of basketballers, and a bouncing ball. It would be quite an exercise setting something like this up...

R.B. Where would you take something like that?

R.M. I like the idea of putting it in an unlikely place, like putting an indoor gym on top of a hill in the bush somewhere. You could put it in a street, but you would have the sense of that sound being possible there, because you have concrete all around, the possibilities of those sorts of echoes. I mean you can play basketball in the street, but you can't play basketball in the scrub. It would be interesting swapping places like that, such as taking the Australian bush and putting it in a basketball court. But as I say, this is just something that interests me... Kerry Fletcher has the idea to record the ambience in a cave, and she wants to do it at different times of the day and under different environmental conditions. I think it's a beautiful idea, and it would be a challenge to reproduce the ambience within that cave.

R.B. High tide, low tide...

R.M. Well apparently at high tide the water closes off the entrance to the cave, leaving a considerable cavern inside.

R.B. This brings me to Evos music, via a circuitous route... You've been involved with Evos since its inception, how has it been important for you?

R.M. Evos is really important because one of its most important roles, I think, is fostering new talent and new interest in contemporary, or experimental music, whatever you want to call it. The more we expose people - young people - to different ideas in composition and music playing, tape manipulation, the way we perceive music altogether - the more our musical ideas will evolve, and grow.

R.B. What's your notion of *Radiophonic*? Every composer I've spoken to has a different idea of radiophonic. What's your notion of a radiophonic work?

R.M. I think it's something that's designed to be listened to on the radio. It might be that it's temporary, that it's more ephemeral than 'music' because of (it's nature). Here you are confronting an 'unseen' audience and using compositional technique to create a direct communication to the audience.

R.B. Can you give an example of a radiophonic work that you've been involved in?

R.M. I haven't been involved in many. At 6UVS we used to put on a program called **Images** - it wasn't my concept - which was put together as a whole work, you couldn't just take out a part and make use of that...

R.B. Does your work have any social or political implications?

R.M. Implications? Not deliberately, I don't think, although pieces like **Intervention** have some sort of political message, I suppose.

R.B. Tell us a bit about **Intervention**.

R.M. I made a recording of someone trying to board an American ship past an American sailor, making statements obviously opposing the ships. The sailor had his orders and wasn't going to budge. The person kept saying "These ships are designed for one purpose and one purpose only and that's intervention". The sailor repeated over and over the one message: "That's your perogative ma'am, but this ship is closed and if you'd like to make an appointment to see the Captain...". She kept saying "these things are designed for one thing and one thing only", "these ships aren't welcome in our ports", "the alliance is a millstone around our neck". And the sailor kept replying "Thank you ma'am but the ships closed..." etc. and it conjured an image of someone beating against this big chest. I put it to a tape loop of drumming...

R.B. How do you see your role in the development

of experimental music in W.A.?

R.M. Apart from going along with it I don't see myself as affecting its development in any way. I'm sure any person who works with other musicians is going to get some idea of different ways of working. I mean, I've obviously learnt a lot from musicians that I've worked with, and I hope I'll continue working with other musicians and therefore learn a lot more.

One aspect about the development of music in W.A. is the documentation of this work, and one of my main involvements with Evos for example is not so much to create work myself, but to try to make sure that the work that does go up is documented in some way. The main part of my work I suppose is creative recording or creative production, its not so much composition. I still wouldn't call myself a composer, but rather an engineer or producer or something like that. Well, I produce work myself but out of bigger works or out of the sources of other peoples work. A lot of my so called 'compositions' I call productions, because they are 'pieces' of other peoples work, or they're stolen or sampled pieces, transformed. For me the tape recorder is not an instrument, it's just a collection place.

R.B. It can be, but I think it has many purposes. It can be a compositional machine for instance, as well as a collector of sounds.

R.M. Compositional machine? Well, yeah, O.K. But I like the idea of collecting sounds... To use these as a source and make some sort of 'production' out of it.

R.B. Could you give a bit of background on the Joondalup Project?

R.M. I was asked me to get in touch with the artistic committee for the Joondalup Development Corporation, who are building what has been described as Perth City Centre number two. They are building a city at the very northern end of the suburbs, including an underground railway that goes from Perth City number one to Perth City number two. Terry Maybury, a video artist and I have been invited to document the development of this site, which is now virtually bush. The purpose of the artistic committee is to make sure that artists are working with architects and town planners before the development begins, and not afterwards which is the usual case with town planning. Other artists involved include visual artists and writers - I don't think there's a composer - to design parks and street furniture, and work out concepts for naming the streets, and so on.

Our task is to capture some of what originally grew and lived in that area, and to store it until the city is completed, and then hopefully return some of that natural environment, which has or will be flattened through the development.

R.B. How do you feel about the use of sound in this type of context?

R.M. I like the idea of trying to soften environments, that have been transformed from the bush to a city.

R.B. There is an element of irony to this, though?

R.M. The contradiction is always present. People accept this all the time, with say housing developments. You have to live somewhere.

R.B. Do you see yourself creating pieces out of these recordings?

R.M. There will be an art exhibition based on painting of the environment. The committee is also looking at mounting installations of sound and video work related to the project. There is a possibility for something there... but as well as the environmental sounds the idea was to get sounds of industry as well, such as the bulldozers and cement mixers, the building of houses, and so on. Each step of the development is supposed to be documented: a montage of destruction, and reconstruction.

R.B. Well, that might be a good place to end the interview.

Robert Muir is a Perth collaborator and producer of sound montage.

Sound Sculpture in Australia

Ros Bandt

I would like ot hear from anyone who has been involved in sounding artworks in Australia over the last 20 years. If you have worked in any of the following I would like to hear from you:

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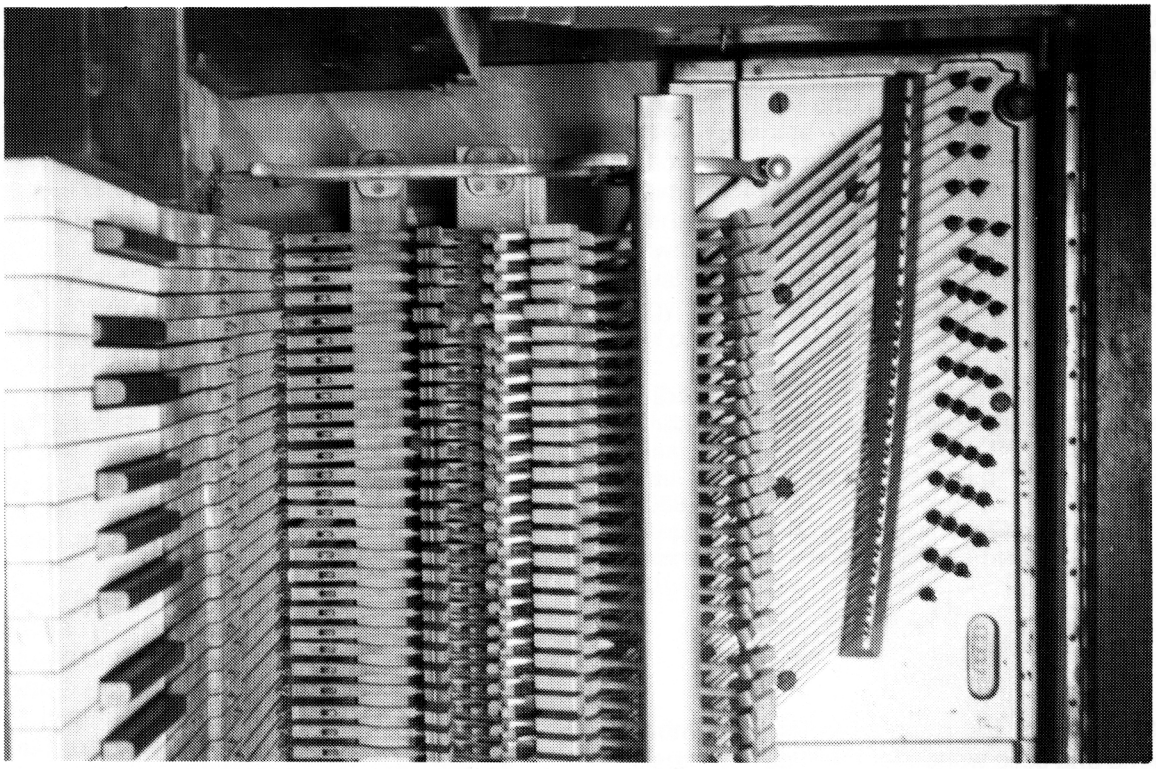
A little bit of piano

Nathan Crotty

It seems to be on occasion, and it is always that my idea of this world, that is my head, comes to be a piano. I just thrust my arms into my head and play. What comes through as sound, (there is no room for music up here) is just a side effect of having this piano land on your shoulders, completely wiping out all trace of what used to be a head. It's nobodys fault when this happens, but how could I be responsible for such a feat? It seems to always go that, no sooner do I open myself as a channel to focus on sound, than my head is gone and forgotten, to be replaced, like the transitions in dreaming, by the darker and deeper reaches of a sound board swirling and clouded at the edges, or the action of a piano keyboard, or even the bit between the bit up there and the bit down there, and reaching high for to pull at and poke out all of those monadic overtones that we love to hear so well.



Chaos works

Jonathan Mustard

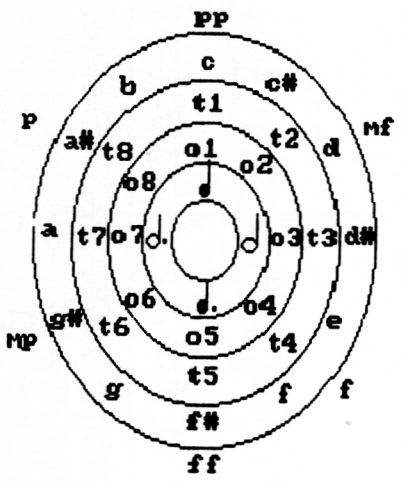
Draw yourself a parameter clock, e.g. example 1. Expand or contract clock to taste. You may like to include such things as spatial location, simultaneity, venue, form, instrumentation, repetition etc.. Draw yourself a grid. It can be any size but the greater the width the more varied the result. Try somewhere between 7 and 15 cells wide to start with.

Fill some of the cells in the first line (a dot or a cross will suffice, it doesn't matter). You may flip a coin to decide which cells are filled or not, or arbitrarily fill as many as you like. Each subsequent line is filled by the following method: If the original cell is asymmetrical with its neighbours then the cell below is filled. If not, leave empty. Note: the hypothetical cells before the first and after the last cell are always empty (example 2).

Give a value to each cell. Where a cell is filled, use its value to proceed by step from any point on the parameter clock in your chosen direction. You have defined your first aural event or part of it. Continue this process until all the values generated have been exhausted, or until you're fed up.

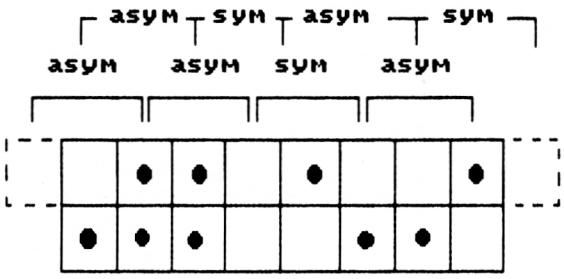
You may have ten different sheets of paper with values for each parameter written on them. These can be the score or you can reconcile them onto a staff or other notation. The process of reconciling the parameters with any given instrumentation and with each other requires creativity or ingenuity (or cunning?) and is the most interesting part. Alternatively it can be a pain in the neck, depending on how many or how complex your parameters are.

If you are lucky enough to have a computer with an intelligent music program, just a few lines of programming will generate the piece.



Example 1.

In **Automaton 3** for bass clarinet, marimba, vibraphone and cello written for the *Alea* new music ensemble, I used all automata eight cells wide that apply the asymmetry rule described above to generate localised musical material. Pitch and frequency of attack were the only two parameters affected by the automata. All other parameters were contrived using conventional serial and subjective methods. The work is in three sections of diminishing length each describing a motion from a diatonic state to fully chromatic. The motion is described in a general sense only and does not proceed in a straight line, but zig-zags and flips back and forth between various points on the route while simultaneously maintaining a reference to its origins, diatonicism (heard throughout in the cello, which acts as an anchor for the piece).



Example 2.

The cells of the automaton in this work represent a continuous stream of hypothetical attacks equidistant in time. Whether a cell is filled determines which of the attacks are to be played. Each of the automata are categorised according to the number of cells filled overall - in other words the density of attack overall. Four categories range from a minimum of one attack to four, in a line out of a possible eight, over fourteen lines.

Values of one to eight are assigned to each cell. These are then used to step through an expanding pitch wheel - an increasing arc of the circle of fifths.

The eight cell automaton repeats itself after fourteen lines (or seven if the initial sequence of cells forms a palindrome), and there are only sixteen automata in this category that I could find. Each of the automata contains some form of mirror imagery or retrograde at the seventh line.

Given these properties it is not hard to make the leap from an interesting pattern in a grid to something that makes sense musically. Firstly we have an idea or mechanism that can be *taken to its logical conclusion* and secondly an object that is familiar in that it behaves of its own accord in a fashion that composers often contrive in manipulating musical material - retrograde, retrograde inversion etc...

However, automata using a larger number of cells in the first line contain properties that are a greater challenge to a composer. For example, a 12-celled automaton using the above rule (there are 256 different rules for generating automata using neighbourhood cell relations) will yield a highly

unpredictable result where patterns seem to emerge briefly, degenerate into chaos and reappear in an altered fashion many iterations later. Many hundred, perhaps thousands of iterations are required for the 12-cell automaton to repeat itself, if it ever does. (After the three hundred iterations used in **Automaton 1** for flute and tape, no exact repetition occurred.)

These peculiarities of cellular automata have become part of the body of physical and mathematical enquiry called chaos theory, currently receiving much publicity in the media. It has already impacted on most branches of science and is claiming the attention of social scientists, philosophers - and composers world-wide.

The idea that chaos is a creative force in bringing order to the universe is a reversal of prior notions of entropy, or the second law of thermodynamics, which implies the universe is dying through loss of energy (roughly) - or *from* order *to* chaos. It may also sound the death knell for those Newtonians who would have everything explained by chopping up the world into little bits to be analysed in a linear deterministic way; that is, that life can be explained by generalising the behaviour of a simple cell, or that by extrapolating the laws of gravity we can understand the rings of Saturn. Unfortunately (or perhaps fortunately) reality is more complex and these laws, which for centuries have dominated our methodology and thought processes in almost every way are insufficient to explain even very mundane phenomena.

This article reports on only tentative explorations into the more accessible mechanisms which describe chaotic events. The resulting works of music are fairly lightweight in terms of their large-scale structure and attention to detail, and are intended mainly as studies to explore the expressive/gestural range available from chaotic phenomena.

Translation of more complex chaotic phenomena to aural events appears to require an understanding of higher mathematics, or at least collaboration with specialists in the field.

Visual equivalents of chaos, notably the Mandelbrot set, have produced some stunning results and sparked a new movement in visual art exploration. At this stage it is difficult to assess whether this exploration will give rise to any new art movement - probably not as many of the ideas have been common currency in art and music for decades. It is a pity the popularisation of this new general theory of science has been dominated by its visual applications and no mention is made of their musical equivalents since the 50's.

After the first performance of **Automaton 1** & **2** at Evos Music's monthly composer/performer forums in Feb '90, one audience member pointed out the paradox that this music was incredibly structured for something inspired by notions of chaos. These pieces are serialised chaos if you like, and it seemed then that some kind of a bridge had been formed between two schools of musical thought which previously appeared irreconcilable.

On the one hand, advocates of chance or random musical expression often rely on the notion that either performers or the audience use the human ability to make order, form and meaning from randomness and at the other extreme, serialists, or even non-serialist composers of fully scored works impose as many aspects of form and meaning as possible, being very specific as to what is being communicated. (Of course these are very generalised descriptions by no means applicable in all cases).

The beauty of chaos is that both these approaches may be satisfied in one work. The opportunity is there for rigorous specification of parameters yet its highly unpredictable results appear random.

There is however a distinction between randomness and chaos. Something which is chaotic is not truly random. Randomness implies irreducibility to any kind of formula or generative device. Chaos on the other hand is often the result of very simple formulae. Science is finding that apparently random phenomena are actually the result of chaotic processes, and one is hard pressed to find truly random events (music which claims to include random elements is often better described by chaotic processes).

Chaos in serial music opens up the issue of active listening in a way which has been denied it in the past. Given its unpredictability, its negation of taste (at least in those parameters over which 'chaos reigns') and the effect of distancing the composer from the work, audiences are required to 'make their own way' through a piece of serialised chaos in a way more familiar to audiences of chance and improvised music.

This article makes a number of generalisations and assertions which have not been fully explained, but are offered as a few thoughts on the subject for further discussion.

One of the most interesting aspects of chaos is its ability to embrace conflicting ideas under one umbrella, while maintaining their individual integrity and to imbue them with an altered complexion.

I have described briefly how two extremes of musical thought can be reconciled under one complex, and perhaps we may eventually reconcile the implications of chaos theory which seem to undermine accepted physical laws under another and show that it is natural for contradictions to exist in a complex system or that laws hold true only for a certain level of complexity after which higher level laws take precedence. We may see a whole array of rival dogmas in fields of philosophy, politics, sociology, art, music, economics and so on *living in peaceful co existence.*

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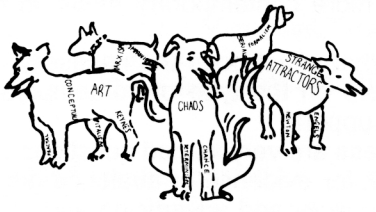

An interview with Lynne Mitchell

Ross Bolleter

R.B. What do you see as the significant developments in contemporary music in Perth since 1987?

L.M. Audiences have had access to a much wider range of contemporary and new music since '87. There has been a coming together and a moving apart of the two main practitioner interest groups. Of course we're talking about the influence Evos has had since '87. There's been more government funding channelled to the promotion of new music, to commissioning WA composers, to encouraging young developing composers and to providing opportunities for practitioner development.

R.B. What role has Evos played in all this? How would the scene be different perhaps if Evos hadn't existed?

L.M. Evos's role has been to act partly as the bureaucratic organ that applies for and manages the funding; partly as the scapegoat in the comtemporary music community. I say that because at times that's what it seems like. There's so little money to go round, and obviously the fairness of the whole procedure is often questioned. Evos through its structure of management board and programming committee decides how to apply the funding. One way or another Evos has kept the contemporary scene moving along.

If Evos hadn't been here I suppose ensembles like Nova would have become more entrepreneurial sooner. Tos Mahoney's festivals of improvised music might have continued on. Perth's reputation as a supportive place for new music may not have emerged.

R.B. What is your view of Evos's role in what is now a very complex, top-heavy music scene?

L.M. I think it must shift its focus slightly from an organisation that makes things happen within the established arts organisation conventions to one that keeps things changing. Evos just can't be one of those bodies that settles into a rut doing the same things year after year. I think that because of what its brief is, it must keep on experimenting with its structure and its programming priorities. Over the last four years Evos has raised the level of new music activity here. Now it finds itself in competition for funding with groups it helped into existence, and sharing its audiences with other organisations that are including more and more contemporary music in their program.

R.B. What effect does the necessity of getting funding have on the type of contemporary music Evos can support?

L.M. These are very loaded questions... Funding bodies look for evidence of audience growth, high levels of publicity and advertising and an ability to attract sponsorship - all the things that just don't go with the types of music and activity Evos supports. Generally the more interesting the program, the smaller the audience. We've proved that the normal arts marketing hype doesn't work for us and we don't want to abandon our principles for the sake of audience growth.

R.B. Do you find strong tensions between forms of music and performance you would like to see developed and what is actually possible in terms of pragmatic aspects of keeping Evos afloat - that is getting funding and ensuring there is an audience?

L.M. There are certainly tensions. If we want to have audiences of more than a hundred we have to have either an interstate or overseas import or local performers with a commercial edge like AC/PVC, or something involving the WASO Twentieth Century Ensemble and Roger Smalley. None of these really need Evos' resources and support. It's a kind of mutual con job. They get an extra gig and Evos gets audience numbers. The chief tension I suppose is between practitioner development and audience development. One should follow on from the other but unfortunately it often doesn't.

R.B. What are some possible strategies for audience development in the face of what seem to be falling audiences for Evos events in recent years?

L.M. They're not actually falling. They've stayed pretty much the same. If Evos were to reduce its activity levels, spend more time and money on marketing and become essentially a concert promoter then we'd certainly see bigger audiences.

R.B. How do you feel about the priority given to a formal concert series in the Evos season? This has been a mark of Evos' programming for sometime. Are there other focuses you would like to see developed?

L.M. The concert series used to be called the Evos Flagship. It certainly still uses up the majority of the Evos funding every year. It doesn't use up the majority of administrative time though, probably only one third, including funding applications and reports directly related to the series. The rest of the time goes on all the other activities: residencies, workshops, newsletters, board and committee matters, collaborations with other organisations, the Innovative Projects Scheme, financial management and other applications and reporting.

I'd like to see more recognition for the not-so-publicly-visible things we do. It's up to us I suppose to ask those people in the community who benefit from them to acknowledge Evos more. I'm thinking of things like dissemination of information, promoting other groups' events, making sure visitors make the

right contacts. It may sound trivial but it's a vital service.

R.B. What are the high and low spots in the Evos year for you?

L.M. High spots for me are definitely when Evos can give people opportunities they wouldn't otherwise have. Like this year seeing how many people were excited by **Machine for Making Sense**: the audience, the workshop participants and the men who delivered the portaloos to the venue. Low spots would probably be the annual audit and no-one turning up to the AGM.

R.B. Has working for Evos re-aligned your musical interests?

L.M. No. I wouldn't have thought of working for Evos if I hadn't already been interested in new music. You can't possibly be that closely involved without an enthusiasm for what you're promoting. I was a part of those equally small London contemporary music audiences of the '70s people always refer to. And I promoted performance artists there at the same time. It was just as hard then as it is now.

R.B. What's your reaction to the so-called split in the new music scene, traditionalist versus experimentalist? Is the split real or more a matter of personalities? What role has Evos to play in the politics of schism?

L.M. It's certainly real. And it has to do with insecurities. You see the same phenomenon with doctors who've trained for seven or eight years. Some don't have much time for practitioners of alternative medicine. And vice versa. Evos's role is to give audiences opportunities of access to a healthy variety of new and contemporary music.

R.B. What kinds of sensibilities and understandings are necessary for survival in administration of a contemporary music body?

L.M. I suppose each body would be different but for survival in Evos administration the ability to be two-faced is very important. Never admit whose side you're really on. I'm only partly serious. It's essential for me to value the integrity and commitment of the various practitioners involved with Evos and I'm very glad to say I can.

Lynne Mitchell is the Administrator of Evos Music.

The Evos Youth Ensemble

The Evos Youth Ensemble (EYE) began in 1988 as a young composers' performing group under the wing of Evos. The impetus for such an ensemble originated in 1986 with Wendy Hiscock's composition course for Secondary level students. The two week courses gave students the opportunity to compose and have pieces performed by professional musicians. Due to the success of the concerts Lindsay Vickery, who with Alison Appelbaum directs the EYE's successor, set about establishing an ensemble of young composers dedicated to writing and performing their own music.

A number of these have grown up with the Ensemble, including Sarah Collins, Zac Laskewicz, and Rowan Hammond. Hammond's **Quartet** for flute, clarinet, bassoon and piano won the 1988 Evos Young Composers Award. Her composition **Minimbience** was performed at the Perth Entertainment Centre as part of the Ethnic Music Centre's Oz Concert as well as on ABC's New Music Week, August 1990. Scored for 2 flutes, 2 clarinets, 2 bass clarinets, two bassoons, marimba, 2 violins, viola and 2 cellos it explores aspects of minimalist technique.

Many of Zac Laskewicz's early pieces were developed with and by the ensemble, including **Darkness, There Will Come Soft Rains** and **Primordial Genesis**. The latter piece won second prize at the Evos Young Composers Awards. Sarah Collins, whose **Gloria** was judged the most promising, is presently studying at the Adelaide Conservatorium.

What is important about the Evos Youth Ensemble and it's successor, the Evos Young Composer Workshop is the opportunity it gave to young people to write music and hear it back immediately, offering the chance to revise the piece and present it again for performance. The effect of this was to give young composers first hand knowledge of writing for a variety of instrumental combinations, as well as raising the performing standard of the ensemble. A friendly environment enabled any of the members to contribute as a performer and composer.

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Some thoughts... reflections... on musical material

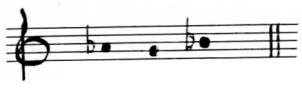
Stuart Davies-Slate.

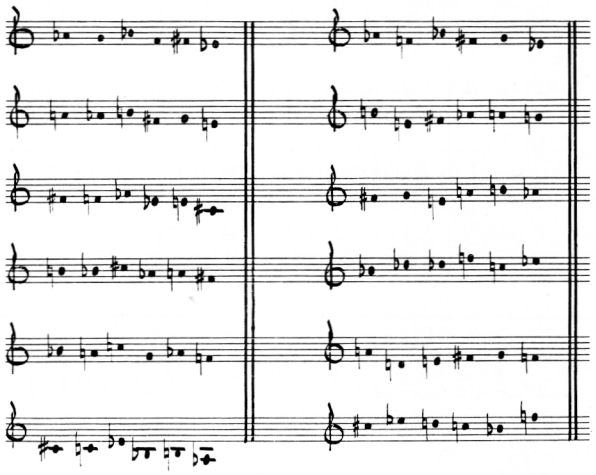
The conception and creation of a musical composition, i.e. the act of realising sonic imagery and translating this imagery in terms of notational symbols, is generally accomplished after a considerable period of reflection, gestation and precursory planning. While accepting that rapid 'flashes' - usually jotted down in any manner of aphoristic shorthand - can, and often do occur at the most unlikely times and frequently in the most unlikely places (inspiration?), the perpetually nagging questions of the skilful moulding of musical material, achieving a satisfactory shape, the power of the initial idea to generate musical discourse, plus a host of other preoccupations, demand a vast amount of time. Prior to all this, one must consider the deeper psychological impetus, the 'inner necessity', the subterranean stirrings which urge an artist to embark on the creative act in the first place. Many of these unconscious factors are working away, long before one ever reaches into a desk drawer for a sheet of manuscript paper.

Methods of working can, over a period of many years, become deeply habitual, although these methods imperceptibly evolve and are subjected to a gradually ongoing process of change and development.

Each completed piece should be both an enrichment to the armoury of composing methods, and also have a cleansing effect as well - i.e. a discarding of unwanted mannerisms, which may only threaten the future clarity of creative vision.

This article, rather than presenting an analysis of an already existing work, will start with an idea and allow it to spring forth - with some guidance and prompting. We shall take all the pre-compositional mulchings referred to in the first paragraph as read, and begin with a shape. In this case it is a pitch-shape consisting of three notes, which admittedly happens to be a conveniently symmetrical number (example 1).

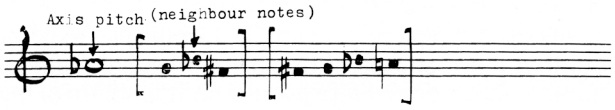
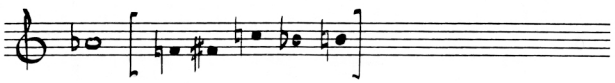
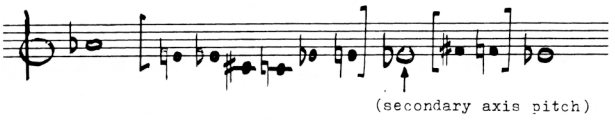
The important factor is the character of the intervals within the shape, as it is these which will determine the 'harmonic ambience' of the composition. It is of course, possible to vary the intervallic character while maintaining the original shape. Although this will affect the harmony, the change may prove to be a positive factor as a wider palette becomes available, and pieces which may be more discursive in their musical argument demand a more far-reaching exploration of material stemming from the musical organism.

Example 1.

Where to go from here? Having arrived at an 'entity' (a three-note shape), it must be allowed to spawn further 'entities'. One starting point is the establishment of a grid, derived entirely from the initial shape (example 2).

Examples 2 and 3.

This primary grid may function as a launching pad for any number of secondary grids, and it is by this means of proliferation that pitch material may evolve, but at the same time maintain an allegiance to the original 'entity'. It also needs to be pointed out that the grid does not have to be binding in it's application - one can have the best of both worlds, setting up the rules, yet being in a position to bend them mercilessly, as dictated by aesthetic considerations. (see example 3 for a secondary grid).

Pathways through these grids can be many and varied. Reading diagonally from the original mould, a central, or pivotal pitch (A flat) emerges, with an

expanding universe created from notes on either side of this central pitch. Adjacent neighbour notes, followed by more distant neighbours, rapidly produce pitch relationships of a varyingly complex and diverse nature. This diversity will eventually produce note successions which only remotely acknowledge the central axis (see examples 4a, 4b, and 4c). Gravitation to secondary pivots may be appropriate at this stage, which will generate a chain of further axis/neighbour pitch interactions. As mentioned above, pathways through a grid are multifarious - they may be horizontal, vertical , diagonal, or pursuing a random trajectory.

A piece might begin with a moderately severe adherence to columns within the grid, however as it progresses, and musical factors override the

Example 4a.

Example 4b.

Example 4c.

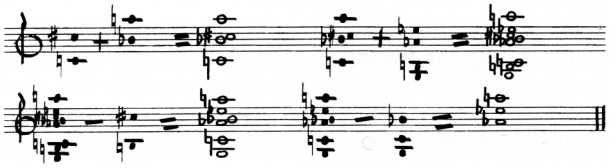
regimentation of the matrix (and the implications of the material have been grasped more fully), its application may become less dogmatic and the 'maze' can be explored more freely. As mentioned earlier, one can have the best of both worlds - freedom to move about, but within the secure binding of your original entity.

The considerations so far have concentrated on the linear dimension. There follows a brief look at one or two examples of harmonic practice, using pitches derived from both matrices (examples 2 and 3). If one can imagine the spawned grid (from the three-note 'entity') as a frame containing a multitude of particles from which to draw, then the building of harmonic groupings becomes somewhat easier. One has to be constantly aware of control over interval tension, however the use of the grid will facilitate this.

Example 5a shows how harmonic texture can accrue by means of adding two or three-note groupings to a centre or pivot, and vertically interlocking them. This expansion may be mirrored by a reduction in the texture - the eight-note aggregate, built up in example 5b, has been reduced down by steps to three notes. However, these three notes differ from those involved in initially creating the vertical group, and it is by this flexibility that a sense of harmonic movement from one point to another is possible. Any of the note groups derived from the grid are capable of being transposed, in order to obtain the desired harmonic result demanded by the relevant musical context. Also, further extension and displacement of individual voices to different octave registers will contribute to variety.

The primary grid we have been using in this article is highly concentrated in character (i.e. contains a preponderance of semitonally-orientated intervals), so therefore the harmonic palette will be rich, although fairly intense.

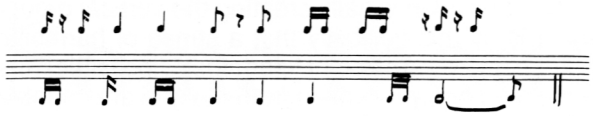
On to matters of rhythm. Once again we return to the formation of a grid, or matrix - in this case by

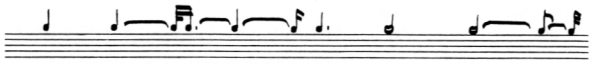
Example 5a.

Example 5b.

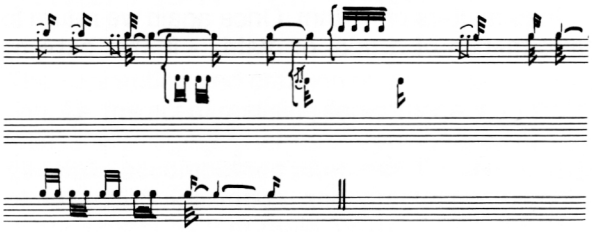
delving into numbers for the purpose of generation durational values. Within the space of this article it is not possible to ennumerate the vast mass of number systems that composers may employ to aid them with the varying stages of the compositional process, so this account will be restricted to rhythmic values obtained from a basic mould, built up from the permutation of the numbers 'one' and 'two'.

Even with this extremely limited material, we find that it is possible to develop rhythmic patterning of considerable diversity (see example 6a). Further variants become available by the use of 'added values' (example 6b), while greater compression and intensity of rhythmic texture is revealed in example 6c (all evolved from the one numerical system). Although it is possible to interrelate and derive both pitches and rhythms (and indeed other musical 'parameters') from a single mould or grid, independent grids have been established here for note progressions and durational values.

Shortly we will look at the synthesis obtained by integration of the elements outlined above, however there is a rather important point to be made in regard to the deployment of methods illustrated here. Immediately one starts referring to, or in some cases even implying, anything remotely based around numbers, objections are raised concerning excessive emphasis on 'mathematics' or 'arithmetic', and the cry of it being devoid of 'emotion' is heard.

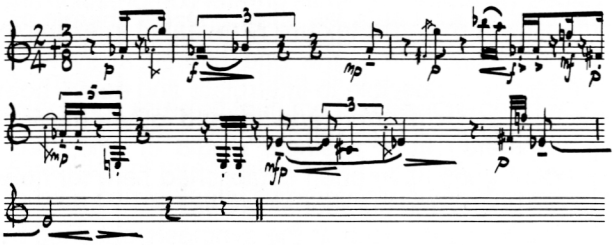
The absurdity of these reactions would be laughable were they not so exasperatingly ill-informed.

Example 6a.



Example 6b.

Example 6c.

Systems, set up as outlined, merely help composers to define a field of possibilities which may not have occurred to them were these not presented by some form of logical process. These systems are very much the initial stages in the act of composing, and decisions further down the track are made largely on an aural/intuitive basis - the ear should always be the final arbiter. The sense of creative fulfilment rests with the completed work, not the scaffolding, which was at least in part responsible for bringing the composition into being. Systems are important, certainly in the early stages of a piece - look after the sense, and the sensuousness will happen as a matter of course. Systems will not remove the emotional content from music.

Finally, the results from the brief explorations of this raw material will be translated into some finished form. This 'end product' is possibly the most difficult aspect to put into words.

Example 7a combines musical elements from 4a, 4b, and 4c, - as well as the rhythmic procedures outlined in example 6a - to produce a single melodic

Example 7a.

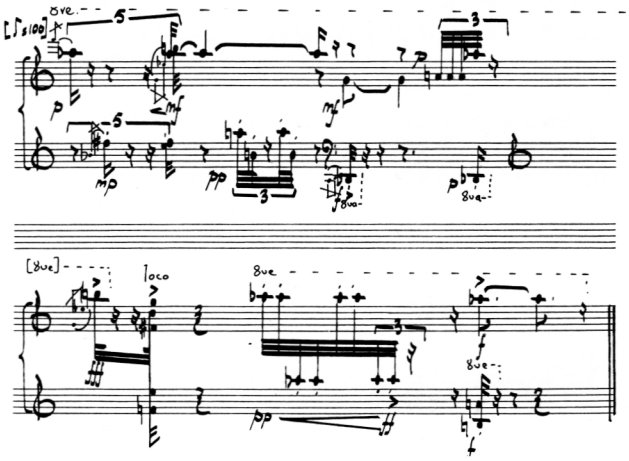
line. The placement of dynamics had a fertilising influence on the formation of pitches and rhythms. Thus, there was an integration of musical material which originated from predetermined systems, plus other factors, incorporated into the compositional fabric, not directed by structural channels. The short strand of melody quoted as example 7a closed at the point where the secondary axis pitch has established itself.

The greatest degree of textural activity characterises the last example in the article (example 7b).

Rhythmically, it is based on ex. 6c, and a few points contained in the extract can be elaborated.

1. The presence of the vertical element, absent from example 7a.
2. Expansion of the harmony from a pivotal pitch A flat - e.g. the pitches fanning out...(G/ B flat / A etc.)
3. This expansion in the vertical pitch groupings is reflected in an expansion of octave register.

As with example 7a, the inner ear guided the choice of articulations and dynamics.

In concluding this brief article, I would like to point out that the methods of deploying musical material quoted above do not represent a compendium of my

Example 7b.

own compositional techniques. The ideas merely touch on some of the approaches to the use of musical material I employ in work from time to time, and that I feel most comfortable with.

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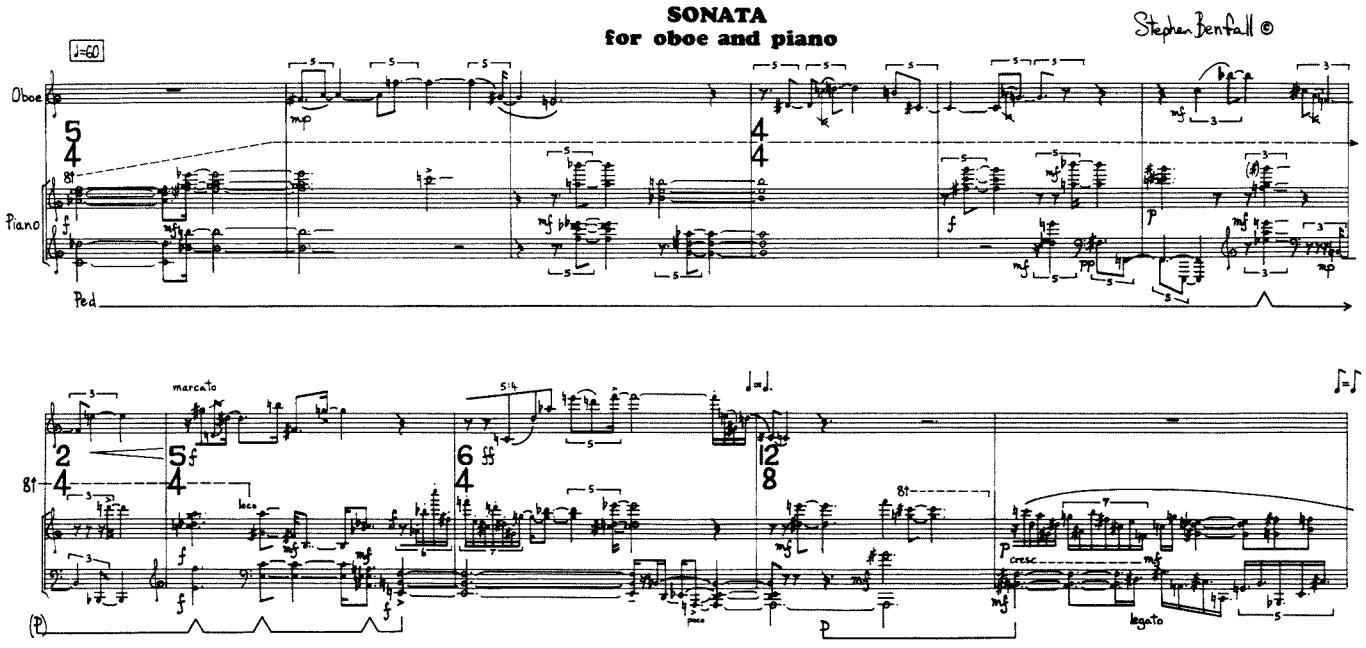
Stephen Benfall

All present-day composers are exposed to a wide range of approaches to music making. Even within the confines of the Western art-music tradition there is great diversity in technical, aesthetic, and sociological viewpoints, many of which appear to demonstrate equal validity. In choosing my own particular paths I try to maintain respect for avenues that have been contemplated and rejected, as these may well prove to be useful or even superior at a later date.

This rejection is an essential part of the creative process however, and once a particular work is commenced, a self-regulated process of selective 'blinkering' can be employed to avoid undue distractions and to reinforce the direction in which the work is heading. I am sure many composers and other artists work in a similar manner, ie:

1. A set of artistic directions emerge.
2. These directions are re-defined, elaborated, etc.
3. The accumulated experiences empirically confirm the initial decisions (major crises notwithstanding).

Most of my compositional efforts are directed towards notated instrumental music. This is the area which best expresses my musical ideas. In a notated score there is a specified degree of control over musical parameters. Pitch, duration, dynamics, and timbre are (or can be) very specific. More importantly perhaps a musical discourse can be assembled and articulated in ways that accurately reflect the degree of control that the composer wishes to exert. There is of course a wide range of notational practices ranging from the highly specific (i.e. New Complexity) through to non-specific (i.e. text scores), with many variants in between. I have not employed either of these extremes as yet and my music can usually be realised and understood acoustically, without the need for notes of explanation.



Example 1.

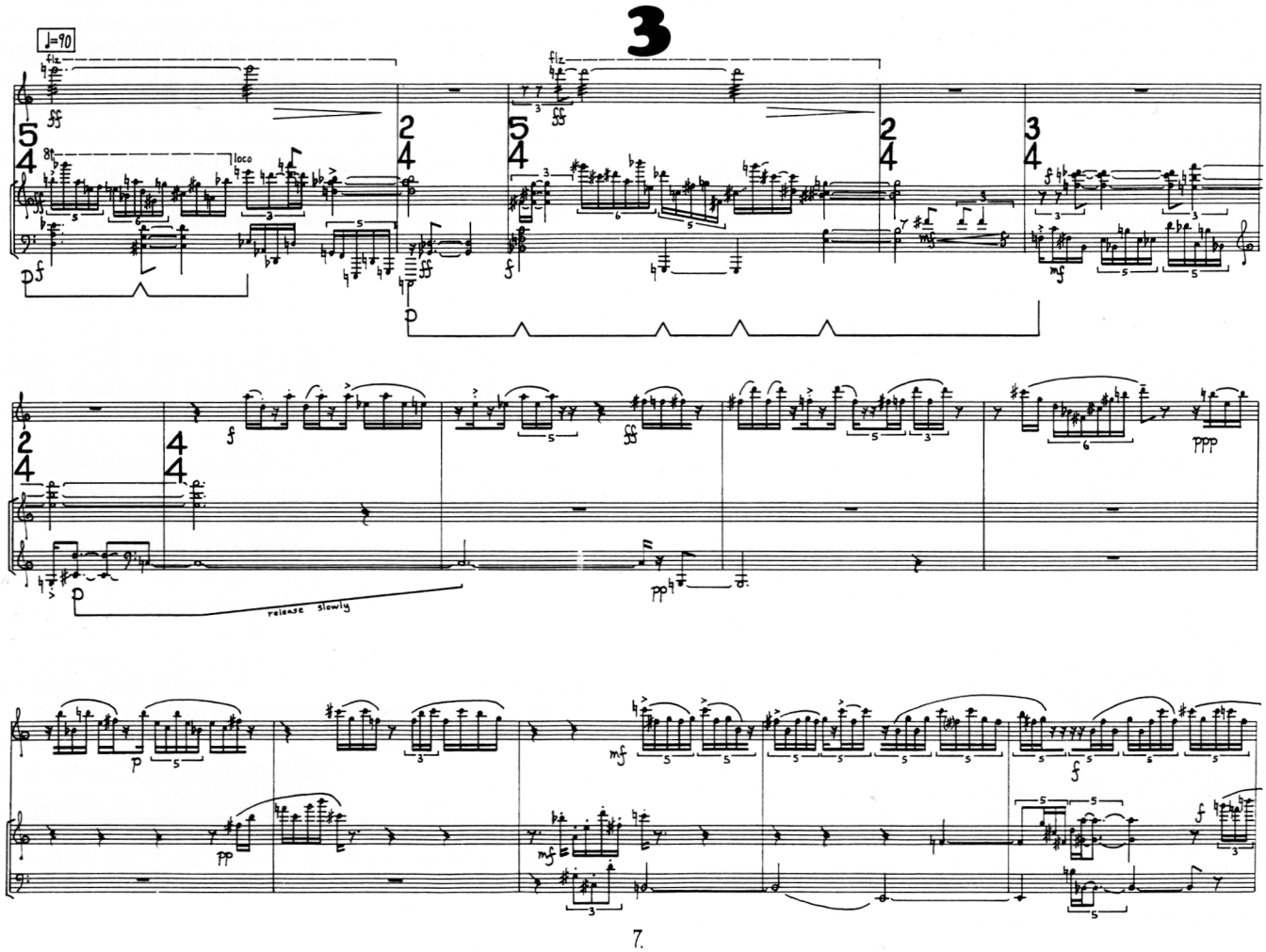
When it comes to writing a work, ideas relating to the various levels of compositional detail are first sketched out, such as macro-level (form), medium-level considerations such as the way in which certain ideas are going to develop, and micro-level (pitch material). These ideas are contemplated and digested and eventually settle into a format and level of detail that is appropriate to the work in question. The 'pre-compositional plan' is largely adhered to once the notes are put on manuscript, though small adjustments are often necessary.

The area in which I consistently apply the greatest degree of control is pitch, though this is hardly uni-

que. Variations in pitch are more easily detected and controlled than changes in duration, amplitude, or timbre and for this reason the emphasis on musical organisation has traditionally been more significant in this area.

I always compose 'idiomatically' -that is, the instrumentation is never added to an abstract idea. Even at the pre-compositional stage all sketches are done subject to timbral and technical considerations, and a potential performance situation is often visualised. This is a source of many ideas, or certainly enough to help get a work under way.

textural and gestural content. Many discoursive interactions take place, ranging from closely interwoven textures to those that are imitative in a more pronounced linear sense.

Pitch organisation plays an important role in **Sonata**. The work is based around a series of permutations of a six-note chord. The chord is structures so as to avoid any duplication of pitch-class throughout its total of one hundred and twenty permutations (excluding transpositions). Pitch-class duplication may occur in successive chords or overlaps but never within any single chord from the basic

7.

Example 2.

In order to illustrate some recent musical preoccupations, this article will concentrate on three pieces: **Sonata** for oboe and piano (1987); **Saxophone Quartet** (1988); and **Hammers** for piano (1990).

Sonata for oboe and piano was fortunate in having two excellent performers in Joel Marangella and Roger Smalley. From a compositional point of view there was a temptation to pull out all stops and emulate the 'New Complexity'. This urge was kept under control however and the opportunity used to focus on some ideas I had not used to any significant extent in pieces up to that time, in particular metric modulation.

Sonata is in five movements each with contrasting

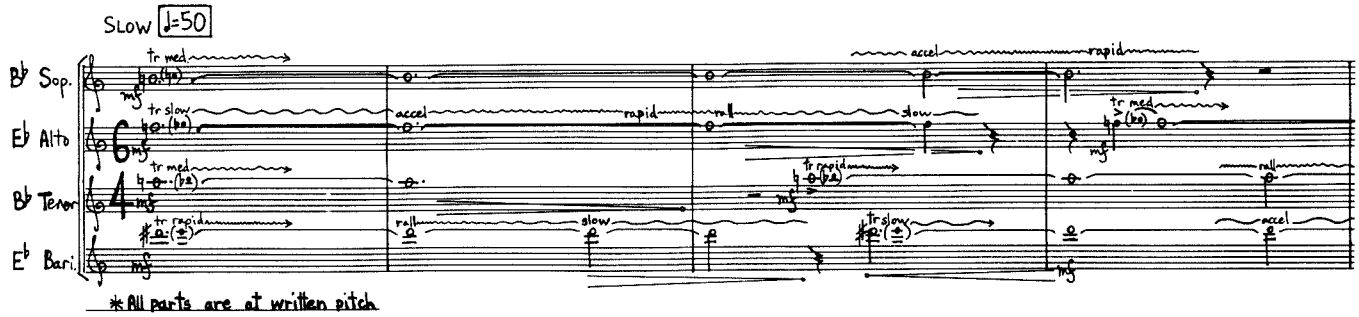
array. Virtually all vertical permutations also sat fairly well under the fingers on piano and were thus idiomatically acceptable as piano chords.

The opening bars of **Sonata** are shown in example 1. The piano clearly demonstrates the chord 'motif' in its basic configuration, with intervals arranged vertically according to size. The work is more 'interval-intensive' than 'discreet-pitch intensive' so there is considerable latitude in choice of transpositions. Example 1 demonstrates the oboe's independence from the piano at this point in terms of melodic shape, lyricism, and its tendency to use those intervals that are not strongly featured in the piano.

The rhythmic structures in **Sonata** are essentially

small-scale although there is a strong aperiodic flavour running through the whole work. Metric modulation is adopted in this piece, and some of the rhythmic groupings developed as a consequence. The aperiodic rhythms are largely the result of the

gradually emerges from this mass and by the second movement melodic independence is quite strong with all four voices clearly defined. The texture of the second movement is generally linear with several brief fugal passages referring to historical models



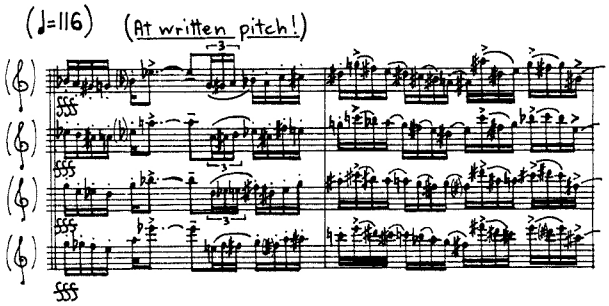
Example 3.

frequency at which note groupings change. Example 2 shows the opening of the third movement. The first five bars of the piano demonstrate how the note entries are sliding between different pulse rates. The same general effect can be obtained by using proportional time-space notation, though traditional notation has greater precision and overall flexibility.

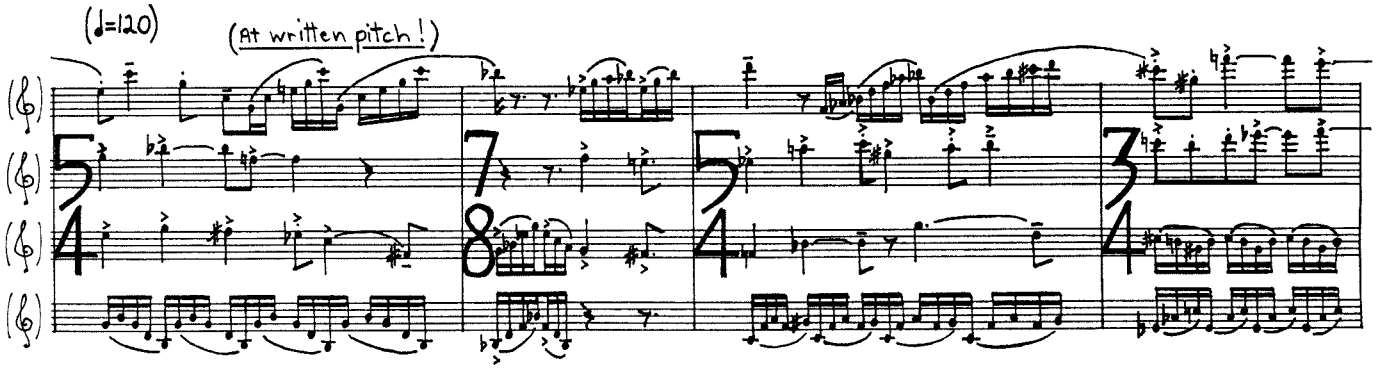
Saxophone Quartet represents a more intuitive compositional approach, and was composed in the relatively short time of ten weeks at the request of the Perth Saxophone Quartet. It is a work with several contrasting movements that implement aspects of new music into a format that is at other times quite conventional. There is no rigorous structural principle binding the movements together but rather a consistency of harmonic material and a general concern for discourse, texture, development, climax etc. In this respect the work is the result of a fairly free and perhaps 'neo-romantic' compositional approach although there is very little of the nineteenth century in the way the work sounds.

In terms of pitch organisation the work is based largely on an octonic or diminished scale. This was chosen as an oblique reference to Bartok, but more importantly to jazz. The saxophone has made a much greater impact in jazz music than in 'art' music and the work reflects this side of the instrument's heritage.

The opening of **Saxophone Quartet** is shown in example 3. The first movement is largely concerned with sound mass and utilises clusters with independently changing trill speeds. Melodic material

and also clearly showing the use of the octonic scale. Example 4 features a point during the second movement at which rhythmic unison is reached. This is reminiscent of big-band styles where such writing is quite common. Also note the use of accents which, whilst being precisely notated, are instinctive to players with a jazz background.

Example 4.

The third movement is a synthesis of ideas that have appeared in the previous movements although this material is presented in new ways. It is the most rhythmically vital of the movements, often using periodic rhythm figures that are offset by jagged accents and changing metres. The finale is a bit of a romp and seemed the perfect place to mildly satirise diatonic tonality without resorting to outright caricature (example 5).

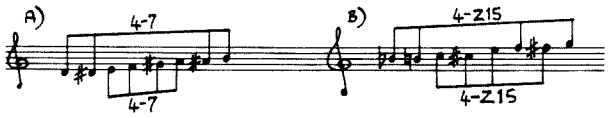
The **Quartet** is not overly 'jazzy' or 'popular' in

Example 5.

overall style, but it is nevertheless a work that could not exist without these influences. It is one of the few compositions which reflects the music I spent most of my time actually playing.

Hammers is a work of approximately eighteen minutes for solo piano. This work employs Forte's[1] set 8-0, and some time was spent working on the set as an abstract entity in order to clarify its possibilities. The first task was to divide the set into all possible combinations of four notes, and example 6 shows the seventy resultant 4-note subsets. These are not all different - in fact there are only nineteen different types represented out of the maximum of twenty-nine possibles. For convenience of illustration the sets are all based on C, though in the work each has its own designated transposition.

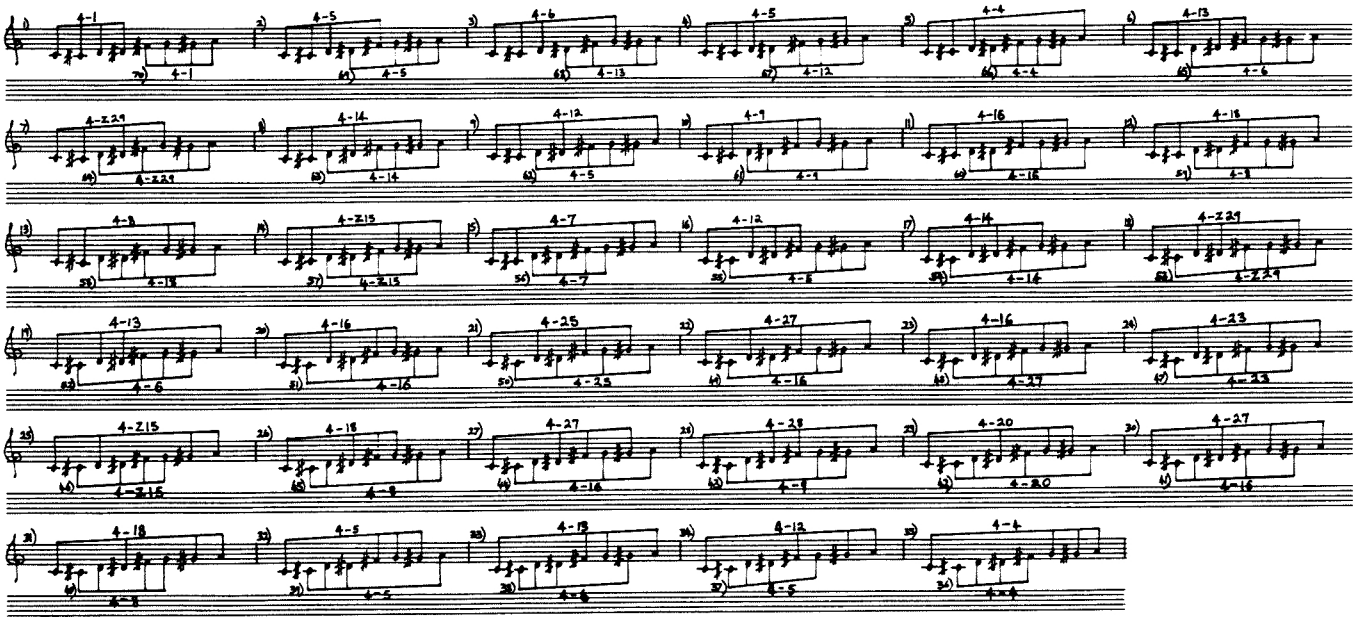
The 4-note subsets have each been given two numbers. Those in brackets are my own ordinal system whereas the bold hyphenated numbers identify the sets by type. A glance at the first two 4-note subsets will reveal that they are identical in structure despite being at different levels of transposition. Subset numbers 5 and 66 also feature an identical structure despite the wider tessitura of the former - transpose the A down one octave and number 5 becomes identical to 66. Transposition is thus irrelevant when dealing with sets at this level.

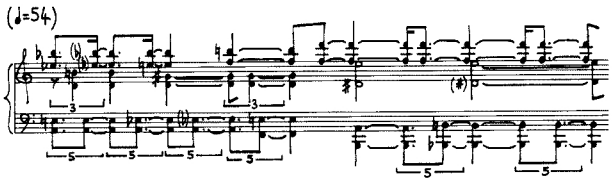
Each set type has an 'interval vector' or list of intervals that are inherent in the set. The vector of subset 4-1 is (321000) - meaning that within this subset there are three intervals of one semitone, two of two semitones (wholetones), and one interval of three semitones (minor 3rd). There are not however any intervals of four, five, or six semitones. It is not necessary to calculate intervals wider than six semitones (tritone) as these are structurally equivalent to their closest-position counterparts. One can see from this that a chart of sets with their accompanying interval vectors can aid a composer in selecting note groupings that exhibit specific interval qualities within a thoroughly rational and quantified (albeit reductionist) system.

Example 7b consists of set 8-9 grouped into two interlocking subsets of 4-Z15. This is an all-interval

Examples 7a and 7b.

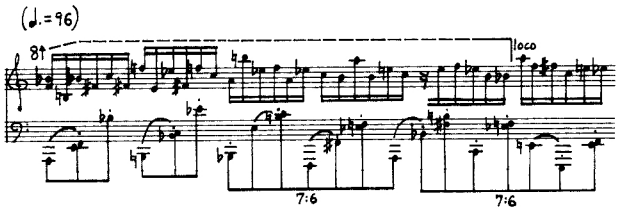
tetrachord, with the symmetrical interval vector of (111111). By using this set alone, all intervals within standard equal temperament may be obtained. The 'Z' indicates that its close relative 4-Z29 also shares the same interval vector despite its slightly different intervallic constituents. The sets 4-Z15 and 4-Z29 are in fact the only two tetrachords that yield all intervals.

In **Hammers** the sets are distributed so that certain of them are favoured at certain times, thus an intervallic flavour may be discernible in the various formal sections. The sets need not be mutually exclusive as many passages feature a wide range of intervals and pitch-classes in which one can find many subsets represented. Although example 6 shows all 8-note sets at the same level of transposition, **Hammers** contains a scheme for allocating certain transpositions to certain sections. These transpositions are similar in their basic restriction to a maximum of eight pitch classes each, although extra notes are added occasionally.

The structure of sets is derived from sound mathematical procedures which do not take into account the subjective implications of certain groups of intervals. All possible groupings are treated equally and without regard for their degree of historic preference. Set 4-27 is a case in point (see example 6, numbers 22 and 27). This set twice appears as a dominant seventh chord and one may be inclined to love it or

Example 6. All possible 4 - note subsets of set 8-9.



Example 8.



Example 9.

hate it for that reason. It is however a legitimate member of the set collective alongside its old tonal cohorts - the diminished 4-28, the major seventh 4-20, and the 'French Sixth' 4-25. **Hammers** uses all the sets listed in example 6, though the inferences of the more tonal ones tend to be lost due to the absence of the normal functional roles given to such structures, and to the fact that sets are usually superimposed and/or fragmented.

when most things are perfectly obvious from the score. There is no mystique in the way I work and few 'trade secrets' though I have gravitated towards techniques and aesthetics that suit my temperament.

All comments stated herein are subject to change without notice.

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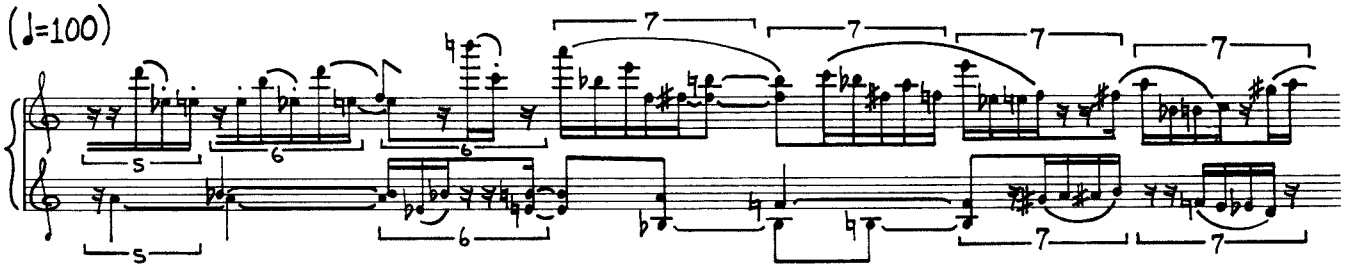
1. Allen Forte, **The Structure of Atonal Music**, Yale University Press, 1977



Example 10.

An extract from the opening section of **Hammers** is shown in example 8. This shows the development of material fairly clearly, especially the three strands of diads each of which pursues its own course in terms of metric subdivision and relative entries. The durations increase incrementally with each new attack (within each strand) coming one tuplet later than its predecessor. This layering of seemingly independent strands permeates most of the piece. The pitch structure is derived from two interlocking sets of 4-7 based on D natural (see example 7a). In example 8 they are treated more as one 8-note set than as subsets, though at other times the reverse is true. This is due to intervallic considerations - the tritone featured in example 8 is unavailable in 4-7 thus necessitating the summing of the two subsets at this point. Examples 8, 9 and 10 all demonstrate the use of polyrhythm and varying degrees of independence between parts (hands). These examples are included to give a glimpse into the general rhythmic and textural practices employed in **Hammers**. Some passages are quite difficult though certainly playable. Complexity is more of a by-product than a compositional end in itself.

I tend to be a moderate and sometimes diffident type with a healthy mistrust of dogma. For this reason and because my music is intended primarily as aural experience rather than philosophical statement I prefer not to delve too deeply into verbal analysis

NMATAPES 9

The accompanying cassette to this magazine features music by writers in this issue. Includes:

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Using music as an open creative resource

Zac Laskewicz

My work is influenced by two primary forces: (i) Theatre, and (ii) Structure. They are highly contrasting and thus create a division in the different works produced. The first is involved with a way of thinking about musical processes as they relate to theatre and theatrical processes, and the second involves specific techniques in composition working with musical structure and development used in other forms (particularly Indonesian Gamelan).

1. Theatre

This area is primarily involved with experimentation in using different theatrical techniques in composition, and also includes compositions that are influenced by literature (new ways of interpreting literature in music). Studying contemporary literature and theatre coupled with a view of the problems of communication through words, brought the realisation that language should not be regarded as the most important means of communication and that there are many things that humans are unable to communicate through language. This realisation has affected my work in two ways, the first forcing me to reject language and work with other forms of communication, and the second to use language in an alternative format, abstracting it from any literal meaning.

The British playwright Harold Pinter has his characters trapped in a void of ignorance, pain and confusion as they try to communicate. This breakdown in language reflects the inadequacies of the society that has created it, and my early work similarly aims to express this through disintegration of texts as they grow towards chaos and cacophony.

My first important theatre work in this area is called **Darkness**, using a deck of prepared cards (read by five people who sit around a small table) and a group of instrumentalists. It contains five excerpts from the poem by Lord Byron of the same name. They are alternately whispered and read out loud by the readers according to instructions on the cards. These cards have instructions for levels of dramatic intensity which increase as the readers work through the deck (morbid tone, mournful, with a hint of fear, approaching madness, totally hysterical, and so on). The cards also contain four solo speeches that divide the composition into sections. They are important not only because of their relationship to the structure of the poem, but also because they affect what the instrumentalists play (example 1).

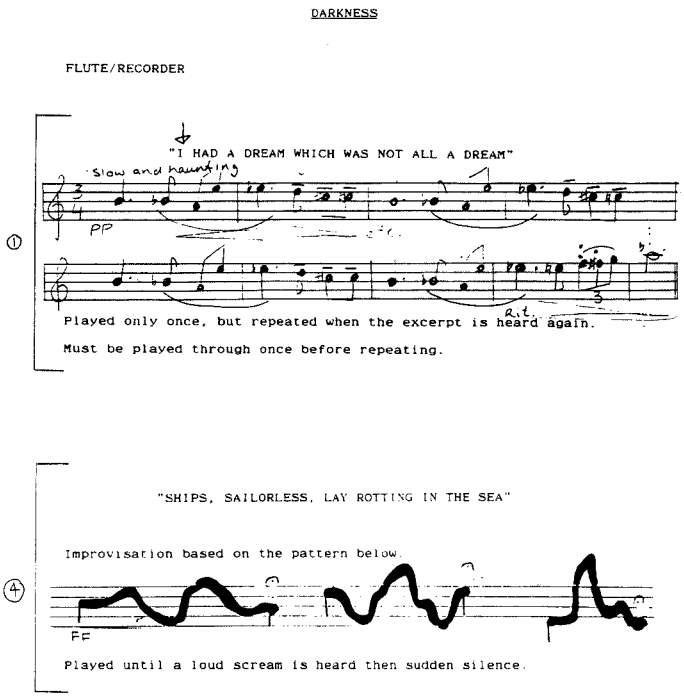
The instrumental parts are sparsely scored and are mostly patterns to improvise around. The solo speeches signify to the instrumentalists that the composition has entered a new section, and a new pattern of improvisation begins. Below are some examples of the instrumental parts (example 2).

During performance, the readers sit behind a semi-transparent screen and the lights are gradually dimmed. The table with the cards is lit by candles. As the work develops, the text literally drowns in its own enthusiasm. The readers begin to 'lose control' as the dramatic intensity increases. The words of the text (which have been constantly repeated) now have a new dramatic function, as they can no longer be understood. The work is concluded by a scream and the extinguishing of the candles, leaving the performance space in darkness. The poem is of a horrific nature using bold and frightening imagery, and reflects a rather pessimistic view of the future of humanity. It depicts an intensely theatrical post-holocaust soundscape.

Another theatre work is called **From a Gable Window**. This is a tape composition involving the manipulation of recorded sound, and is to be performed in darkness and at the loudest possible volume level. The wordless cries of pain and terror emerge from the darkness and act as positive affront to the listener. The work consists basically of four musical scenes edited together, with the addition of some special effects to unite them in the planned scenario. Three of the scenes were recorded in a large hall with stone floors, and one in a smaller acoustic space to provide contrast for a climactic build.

Example 1.

Thirty-two local performers and technicians gathered late at night at the Perth Institute of Contemporary

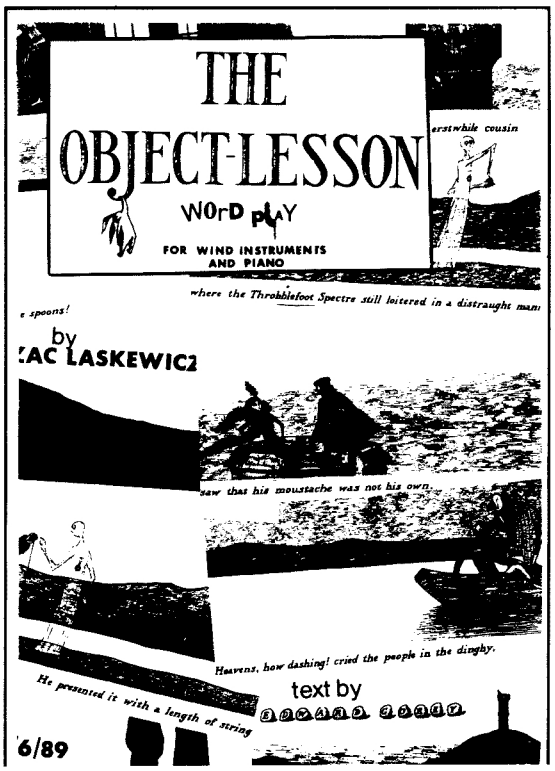

DARKNESS
FLUTE/RECORDER
"I HAD A DREAM WHICH WAS NOT ALL A DREAM"
Slow and haunting
PP
Played only once, but repeated when the excerpt is heard again.
Must be played through once before repeating.
"SHIPS, SAILORLESS, LAY ROTTING IN THE SEA"
Improvisation based on the pattern below.
FF
Played until a loud scream is heard then sudden silence.

Example 2.

Arts in May last year. All performances were improvised under the direction of the composer, using simple hand signals and conducting techniques. The scenes were planned in detail before performance, but because of the improvised format the performers required no prior knowledge of the structure of the piece. The work also uses montage effects which are achieved by multi-tracking in the studio, using the recorded scenes and the special effects. The composition was recorded in stereo, giving a wider space in sound than where it was recorded, so an awesome and ominous soundscape is provided. The work is based on the writings of Howard Philips Lovecraft, famous for his horror fiction. The stories and themes he worked with were basically involved with the existence of dark and uncontrollable forces that prey on the brink between the real world and fantasy/nightmare. Identification with his writings shows an interest in that part of our subconscious that takes over when we sleep and dream. He has influenced writers as diverse as Jorge Luis Borges and Stephen King. A short poem summarises the atmosphere and action within the composition:

From a gable window
the ghastly howling of the Viol
rends the night air
answering an exquisitely distant note
from the darkness
Spectral Strains
played with sinister intent
can attract nightmare forces
from the blackness of space illimitable

From the top of an old and crumbling building, a decrepit and ancient violin player listens to the sounds emerging from the darkness beyond his window. Something is calling to him, and he closes the window to block out the sound. The haunted summons continue, passing easily through the glass, so



Example 3.

he picks up his violin and begins to play. The window panes begin to shudder and the sounds outside become louder and louder. His playing becomes more and more frenetic until his window shatters and he is completely overtaken by outside forces.

This work has two primary attributes. The first is that it is a theatrical work which does not use words - showing that important themes can be expressed without the use of language. The second is that it is a realisation in sound of a piece that was originally conceived as a live instrumental work, but was not brought to fruition in this form.

Literature involved in experimentation has also influenced this side of my work, particularly theatre that goes beyond trying to make audiences believe that they are re-experiencing something from the past. There is so much more to theatre, just as music can go far beyond a simply pleasant aural experience. Experiments in meta-theatre (theatre about performance in theatre) are particularly exciting, often dealing with the interactions between the theatrical world (actors on a stage) and the *real* world beyond the stage. Tom Stoppard, a British playwright, has been experimenting with meta-theatre. In his play **The Real Inspector Hound** two different discourses run concurrently: that of an incredibly clichéd mystery thriller, and two critics who are reviewing the play and sit in a reflected audience on the other side of the stage. The viewer is at first led into thinking that the discourses are separate, but when the hideous clichés of the play become inextricably involved with clichés that seem to make up the life of the critics, we realise that the mystery of the play cannot be solved without the involvement of the critics. Another of his plays, **Dogg's Hamlet** is about two groups of people trying to set up for a performance of Shakespeare's **Hamlet**, but have

great difficulty because even though they share the same words, the meaning for each group is different and they have to go to considerable lengths to communicate.

This experimentation with language and reality is exciting, and was one of the primary influences for a work which uses text by graphic artist Edward Gorey - called **The Object Lesson**. The text is basically a series of humourous clichés that sound as though they should make sense, but in fact don't (see example 3). In performance,the instrumentalists alternately read sections of the text and play from the score, so that a single constant stream of text emerges above a pool of instrumental sound. The text has been divided into thirty-four parts, each player having a series of excerpts which only he/she recites. After a reading of the complete text, the excerpts are mixed and read in a totally new order. The sense of the text moving around the instrumentalists in a cycle is broken. After this the combinations of text start making less and less sense, and it moves into absurdity while the instrumental sound envelops it. The 'joke' in this piece was that the text was developed in a musical form, and the music in a theatrical form (the instrumentalists had to read text).

This work has an obvious comic element, but it also reflects absurdist drama - the disintegration through mixing of repetitions stoops the text of meaning, questioning the purpose of the language. The work also sets up tensions by projecting two performance systems at the same time (music and theatre).

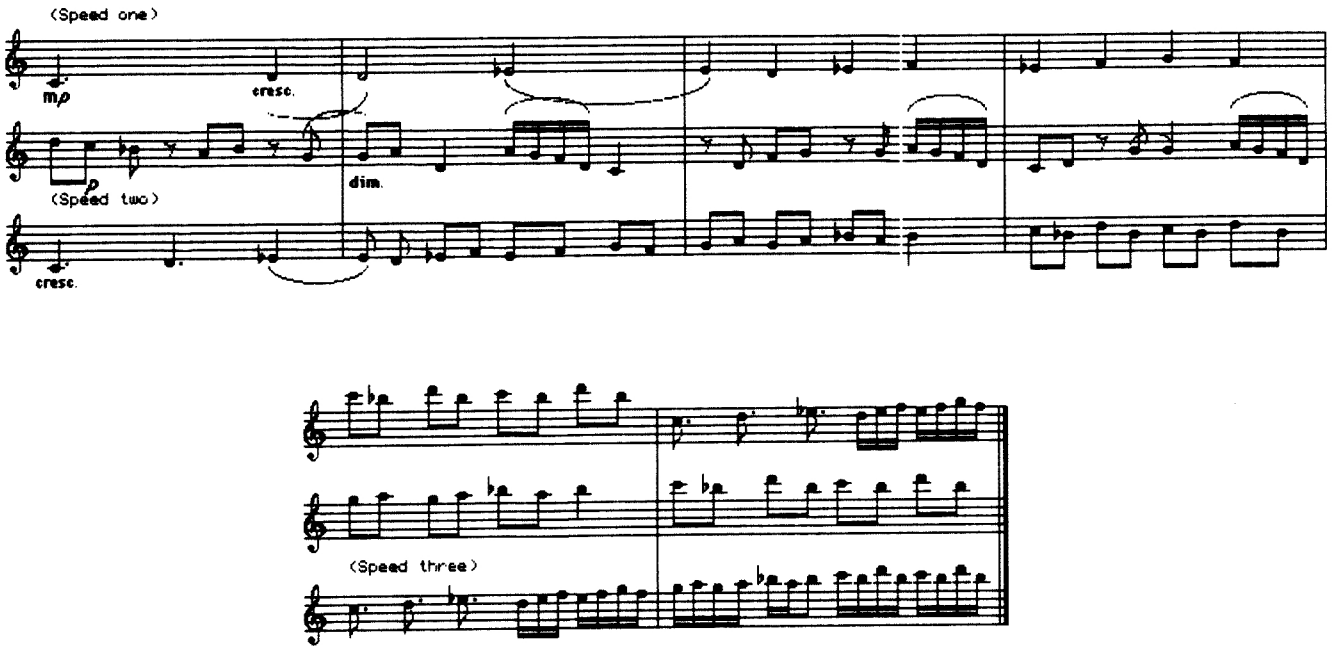
A recent work called **Overture and Piano Blues** was composed for a theatre production of **India Song** by Marguerite Duras. As well as fulfilling the traditional role of an 'overture', the work deals with the concept of space in music and theatre. In this respect, the piece has two functions. The first is to take the audience from their space seated in the theatre into the world of Duras, involved with fragmented memories of a distant past. The beginning of her play requires that music is played "...to cover the time that it takes the audience to emerge from the ordinary world they are in when the performance begins". The piece attempts to make this transition by moving gradually from detached live improvisation to a distant pre-recorded blues piano piece. This transformation can also be seen as a movement from a purely musical space to a theatrical space. The piece begins in darkness, and only detached long-note musical gestures can be heard. As it develops, fragments of melody used in the blues piano piece are heard in different transformations. In the last section, the piano gradually takes the melodic fragments from the other instruments (as they fade out) and the piano piece is formed. Coupled with a gradual increase in the lighting from blackout and the sound of ethereal voices over the piano as it moves gradually into the distance, this piece can be quite powerful.

2. Structure

This area relates to developing composition techniques of musical development and structure, influenced by both formal and folk music. Important influences include Indonesian Gamelan, which I have both played and written for, and the minimalist movement in music. Below are a few of these techniques and how they have been used in specific works.

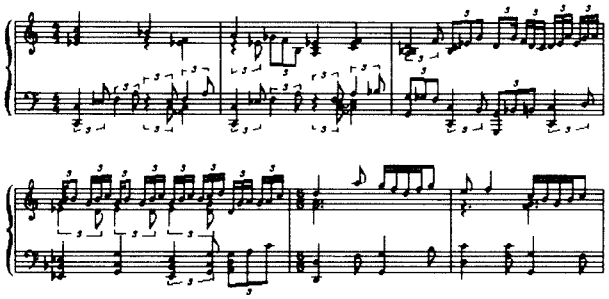
i. Gradual development of melodies and textures over a repeating chord sequence.

Techniques used to develop and alter melodies include increasing speed (by doubling or trebling it), increasing the amount of notes and changing the octave. Complex pulsating textures are developed using excessive melodic and rhythmic counterpoint designed to overwhelm the listener. Some excerpts from **The Power of Steam Machines 2** are shown in example 4.

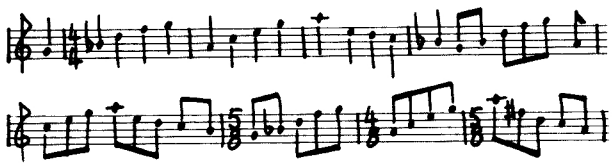
An early example in this style is called **Powah**, which at the moment only exists in an 8-track tape

Example 4.

version. It was composed for 2 female singers, piano, 2 marimbas, 3 flutes, 2 cellos and oboe. The piano and marimba sounds are produced electronically on the recording, which exaggerates the machine-like forward motion in the piece. This work is part of the **Power of Steam Machines** series working with simple chord sequences, repeated to create the locomotive feel. In all these works variety is produced in the following ways; melodic development, transposition to a key area one tone lower and a suddenly contrasting middle section. In these works, the wind instruments are designed to become the 'steam machine', requiring a lot of puff to play.

ii. Use of speed change to bring a composition into a new section

This element of my work is influenced by techniques used in Indonesian Gamelan. The free structural form of Gamelan allows the drummer (the conductor of the ensemble) to gradually increase or decrease

Example 5.

the speed to what is an approximately doubled or halved tempo. The instruments that accompany the simple repeating melody with rhythmic and melodic figures change their patterns to suit the new speed. Often new instruments are introduced, and a sudden change is brought about, although the core melody and structure stays the same. This form was first used in a work for pelog gamelan, **Project - 2**, which used the improvised format of traditional gamelan. It has also been used in a fully notated work for concert band, **Exordium**. In **The Power of Steam Machines 2**, this speed changing format is used but for a different reason - to set the speed of the finale at a slower speed to the rest of the work to make it possible to double then triple the speed of the melodies, creating a truly climactic end to the composition (see previous examples). This format is most clearly used in the piano blues from **India Song Overture**. The example below shows the composition as it moves into the middle section. The piano gradually slows, and the melody above the bass line now has room to grow in complexity. It reaches a point of destination where the metre changes and the tempos slows. The new melody now changes the feel of the piece, although the basic pattern for the notes in the bass line is the same (it has however been transposed up a tone, and there are some extra notes, example 5).

Doubling and tripling the speed of melodies was developed in **Project - 2** in a single voice introductory format. A melody is introduced in a marimba- like percussion instrument, (called the Gambung) the speed is doubled then tripled. After a third repeat the composition goes directly into the next section. The melodic figure has now become an accompanying figure repeated continually while other instruments develop melodically above it. This technique is also used in **Celebration - 1**, and an example taken from the marimba part using this technique is shown below (example 6).

Example 6.

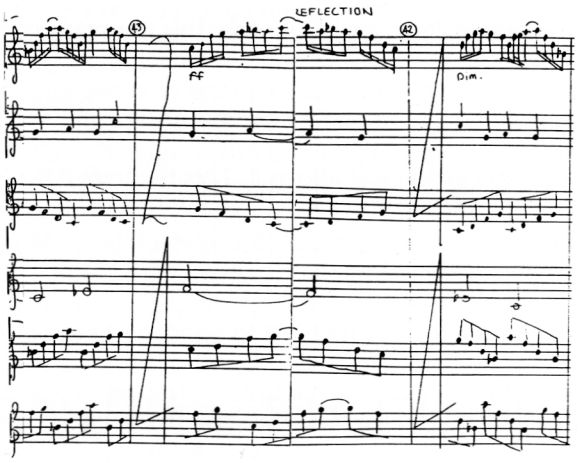
iii. Pre-planned structure

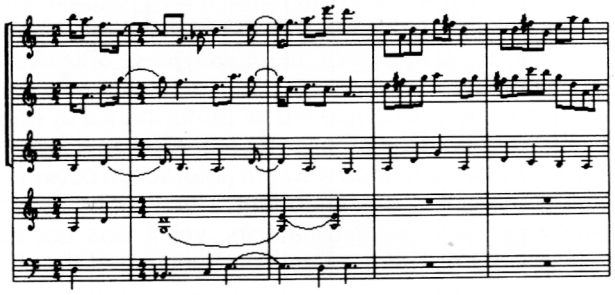
This very much describes a non-intuitive style of composition, and a primary interest in the structure of a work other than its (harmonic) content. The process of composition begins with a simple idea, then a small plan, and then it evolves into a series of numerical relationships and rhythmic developments. After the entire structure of the composition has been worked out, the harmonic/melodic content can be planned. The work **Mood Movement and Reflection** represents this interest in structure. This work was planned in detail before being scored, freeing up the process of determining structure and how the work should develop. Works like **Celebration - 1** and **India Song Overture and Piano Blues** have been largely planned in this fashion, although the use of the intuitive process in combination with the planned seems to create a much more well rounded work.

The title **Mood Movement and Reflection** comes from the way the piece moves through a series of contrasting moods - *movement* is also a play on this word in its traditional musical sense. *Reflection* refers to the fact that when the work reaches a central point it reflects exactly backwards to the beginning, note for note through the 6 flute parts. It also refers to the contemplative nature of the gradual development. The score at the point of reflection is shown in example 7.

This work was composed for performance by one live flautist, with the other parts recorded on a stereo tape. The performance element (interaction between flute and tape) is very important. The work has been performed with six live flautists, yet it was not as satisfactory as the tape version because of the difficulty of keeping rhythmic accuracy, and the need to fade successfully from silence.

iv. Merging of one section into another

This technique has a theatrical nature which if correctly used can have quite an impact on the listener. It is involved with the gradual introduction of a totally new melody which gradually develops into its final

Example 7.

form, invades all instrumental parts and then brings the composition to a new section. This gradual transformation is theatrical in that it is designed to bring listeners to a new state of mind without necessarily realising it. It is used in the climax of **The Power of Steam Machines 2** and **Celebration - 1**. In **The Power of Steam Machines 2** the simple single chord structure allows a new melody to be introduced in its final tonal form, and rhythmic development occurs in the form of speed change (as explained). In **Celebration - 1** however, the more complex chordal structure requires the new melody to be introduced in a form that is compatible with the chord structure it is imposing upon. Only when it becomes a dominant invading force through the instruments can the final melodic structure be used, by which time the piece will have entered a new section. **India Song Overture and Piano Blues** uses a similar formula that imposes melodies on a set structure. The example below shows a point of metric modulation. One by one, the flutes fade in on a melody using dotted quavers, and when they are a dominant force, the other instruments fade out and there is modulation to a new speed. The new speed is the old speed decreased by a third, so the dotted quavers of the flute melody before transposition are now quavers in the new speed.

Example 8.

(continued from page 6)

from some lonely flute, the casual whistling of a happy man. And I wait for the big one.

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Once, as I arrived at the Faraway wires, they were singing with unusual intensity, it was the symphony. In a frenzy I threw on the sensors, but by then the wind had changed, the sun had passed the zenith, and the wires had fallen into silence. How much beauty have they sung unheard for want of the absent listener? Or do they simply play for I am there to hear, and is not this memory enough? I have on tape a thousand hours. The wires have sung a thousand seasons, each a separate path. Perhaps for every song recorded there have been a thousand symphonies.

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What more can be said about the metaphysics of wire music? There is more to come? Consider for example: if all beings were to sing together, what hymn might emerge? If one single wire, just a line in space, can engender such a universe, what hymn might a communion of souls create, what other being? Arthur Young[7] has shown there is yet another dominion for the monad, the realm of the Seventh Kingdom. According to his vision, it is the final one, and humanity is its means, the final one before the next great leap. A simple way to reach it?: the Forest song[9], a prototype of the collective hymn in which all people through modern communication sing together and make a unitary structure of music from which the child is born.

Notes:

1. Percy Grainger specifically singled out the A - C interval from among the 'yearning closer intervals' in *The Goal of Musical Progress*. Unpublished lecture notes, delivered 10 January 1935, p. 6. (Percy Grainger Museum, University of Melbourne).
2. J.D. Barrow and F.J. Tippler. **The Anthropic Cosmological Principle**, Oxford University Press 1986.
3. See for example, Bertrand Russell's letter to Maurice Amos, 16 June 1930 in Bertrand Russell, **Autobiography**, Unwin Paperbacks, London, 1978, pp433-434. See also pp 393-395 for a particularly pessimistic view of solipsism.
4. The concept of the gazing thing is treated with great beauty and depth by the Australian sculptor Joan Brassil in an interview for the **Listening Room**, Australian Broadcasting Corporation, September 1990.
5. Percy Grainger made several references to the singing of telegraph wires. The earliest I know appears in a section marked "cont. of 9" in an unpublished notebook of 1901 when he was 19, entitled *Methods of Teaching and Other Things*. (Percy Grainger Museum, University of Melbourne).
6. From an unpublished manuscript by Richard S. Greenhalgh, Neuromuscular Research Institute, University of Western Australia, 1987.
7. Arthur M. Young, **The Reflexive Universe: Evolution of Consciousness**, Robert Briggs (publisher), Mill Valley, California, 1976.
8. One is reminded of the famous 'laugh of the immortals' described by Hermann Hesse in **Steppenwolf** Penguin Books, London, 1965, pp 181-183.
9. Alan Lamb *How to make a self-organising musical organism: An experiment in ontogeny and evolution for the imagination,* **Kuntsforum No. 103, Sept/Oct 1989. (Ars Electronica, Brucknerhaus, Linz, Austria).**

Improvising with synchronistic experiences

Ross Bolleter and Rowan Hammond

This article sets out, albeit tentatively, the genesis of some of the ideas, notions, hunches and guesses that inform my preoccupation with synchronicity and music. In recent years my work as an improviser has grown increasingly out of literary and philosophical models and metaphors, not in the sense that music is some kind of programmatic translation of the metaphors, but in the sense that the metaphors and models interact with the music to set up relationships that are ironic and likely to raise questions.

The search for synchronicities and the ceremonies that are contrived to encourage their occurrence should be seen in one sense as ironic: a kind of minor theatre that informs and comments on the musical enterprise in something like the way that Satie's performance directions function in his piano pieces (*Ouvrez la tete* - 'open your head').

I have a predilection for audiences working out their own notions of meaning and structure in performance, and take pleasure in setting up situations whereby the audience is not quite sure whether they are getting information about the piece or whether they are irrevocably involved in it. This is an idea which has been worked in a great variety of ways by composers as diverse as Althoff, Burt, Cage and Linz as well as by Ed Harkins and Phil Larson in the music theatre duo *THE*. In spite of its wide currency it seems to have the potential for further development.

Another form of play which invites investigation is the subtle shifting of the boundaries in conventional concert going, especially where radios go proxy for performers, and a kind of mirror play of presence and absence results (**That Time (Simulplay II)**, **Pocket Sky**).

Then there is the fascination with difficult or 'impossible' situations: (the performance is eternal if the instructions are carried out; there will be a set of musical relationships set up even though the performers cannot hear each other; the music is created while the attention or the intellectual gaze is averted.)

As I am primarily an improviser, much of my work grows in response to highly specific, unrepeatable and always changing circumstances. As such my work has never become deeply immersed in the formal legacies of 20th Century European tradition, except as a source of pastiche (applying all the resources of total serialisation to well loved songs like **La Vie en Rose**). A background in playing (un)popular accordion and cocktail piano, as well as a passion for Argentinian tango, keeps me well clear of the music departments of Colleges of Advanced Education and Universities.

Some of the recent developments in the use of Chaos Theory to generate musical structure are of particular interest. The notion in C20th Music that the overall structure of a piece can be encoded in its tiniest units and that the microcosmic aspects can be used to determine its macrocosmic design, has been around for a long time (going back at least as far as Webern's **Concerto**); as a metaphor for 'self-similarity' from Chaos Theory it seems to admit a variety of approaches. In **Pocket Sky** some of the notated stretches will play with the smallest units being encoded in the overall structure and vice versa. This derives from Bohm's notions of enfolded implicate orders and Aquinas' notion of *tota simul existens* where the (eternal) present enfolds all past and future moments within itself.

One of the difficulties of this kind of work is the temptation to literalise models and metaphors in musical terms. The working process is thus directed towards getting beyond the duplication of structures and into the region of playfulness where text and music can work on each other from a variety of angles - reinforcing, colliding, contradicting and occasionally agreeing.

Finally, the term *synchronous* is used to refer to events which occur at the same time, and *synchronistic* to indicate the experience of events that are connected acausally, usually taking place at the same time and meaningful to the person who experiences them.

1. A preliminary look at synchronicity: some definitions and general notions

Jung, whose work is seminal in this area, invented the term synchronicity to indicate the meaningful coincidence of similar or identical thoughts, dreams or other events occurring at the same time in different places. A celebrated instance of this kind of experience, which is drawn from Jung's psychotherapeutic practice is as follows:

"I walked with a woman patient in a wood. She tells me about the first dream in her life that made an everlasting impression on her. She had seen a spectral fox coming downstairs in her parental home. At this moment a real fox comes out of the trees not forty yards away and walks quietly on the path ahead of us for several minutes. The animal behaves as if it were a partner in the situation".[1]

This experience has several features that are characteristic of Jung's notion of synchronicity. Firstly, there is a *characteristic 'inner' state* - the dream of the fox, which at the moment of its recounting is *matched by a corresponding 'outer' event* - the appearance of the fox. Secondly, there is no conceiv-

able causal connection between the recounting of the dream and the appearance of the fox. Jung describes such occurrences as *acausal*. Thirdly, the complex of events is *meaningful*; the appearance of the fox resonates with an immensely significant dream. It is as though the fox appears to confirm what has happened and what is happening in the depths of the psyche. Fourthly, the re-telling of the dream occurs at the 'same time' as the appearance of the fox on the path (that is, the re-telling of the dream and the appearance of the fox are synchronous). In some synchronistic experiences the events take place at the same time, although this isn't a necessary condition for an experience to be considered synchronistic.

In fact, Jung and other psychologists such as Progoff and Bolen regularly include as synchronistic experiences complexes where, for instance, the dream and the corresponding event in the external world occur at different times. On these grounds some precognitive dreams can be regarded as synchronistic experiences.

Some synchronistic experiences reveal a deep connection between events that we would normally think of as belonging to separate categories of experience, for example, dreaming or thinking on one hand and the occurrence of events in the 'external world' on the other. When synchronicities occur there is a sense that what happens inside (in thoughts, feeling and dreams) mirrors and connects with the world outside and vice versa. In this way our isolation from the world is overcome, at least momentarily. It may be that synchronistic experiences are like a foretaste of unitive or mystical experiences, where individuals lose to a greater or lesser degree their separation from the world.

In looking at musical phenomena in the light of theories of synchronicity I have not drawn on the foregoing classical account of synchronistic events (which involve the acausal and meaningful connections of the 'inner' and 'outer' worlds) but rather have chosen to work with the characterisation of synchronistic events suggested by Progoff:[2]

"When two or more events take place at a given moment of time without either having caused the other but with a distinctly meaningful relationship existing between them beyond the possibilities of coincidences, that situation has the basic elements of Synchronicity. Events of this type usually involve different individuals or groups."

This description does not buy as heavily as Jung's into the conjunction between the internal realm of dream (and desires, thoughts etc) and the 'external world'. I feel more comfortable dealing with musical events as belonging to the 'external world' and attempting to investigate their meaningfulness by looking at my own and other people's responses to them. This is not to suggest that Jung's classical conjunction of dreams (and other 'inner events') with events in the external world is without profit in this enterprise. Indeed, musicians involved in **Pocket Sky** are asked to keep a diary of dreams that occur (before and after) the performance.

II. The background and context of *That Time (Simulplay II)*

Devising and organising pieces where the musicians are widely separated in space, but are playing in the same time interval, proceeded quite naturally from improvisational circumstances which arose in conventional spaces. My earliest experiences were playing with other improvisers in situations which were highly convergent, where the musicians strove to create a highly cohesive music based on listening closely to each other and staying together, as for example in modal jazz, and similarly, modal 'reflective' or New Age music. As I became more engrossed in free improvisation, I discovered more and more divergent approaches to the creation of music; these included the limiting case where neither musician listens to the other, but resolutely pursues their own path. On listening back to tapes of the improvisations I discovered that what seemed horribly anarchic in performance actually jointed together quite well when one listened back, and that all sorts of subtle interconnections occurred between the players, of which I was quite unaware during the performance. From this I was led to consider the possibility that similar interconnections might exist, even if the players could not hear each other at all, say when they were playing in geographically separate locations. I thought of these interconnections, if they occurred at all, as being at least potentially synchronistic.

To test this out, in January 1987, as part of the *Rooftops Projects*, a session of free improvisation was arranged with Philip Kakulas (double bass) playing at a home in City Beach and myself (playing prepared piano) at my own home in Mt. Lawley. Both performances were separately recorded. We used a countdown by telephone so that the recordings could be mixed synchronously onto 1/2" tape. The recording lasted for forty five minutes and contained many textural overlaps between double bass/piano and a glorious common synchronous silence lasting some 15 seconds (about 6 minutes from the start). Each performer devised a poem for the performance. With these poems, as with the music, style and content were left entirely up to the performer. There was no prior discussion as to the nature or placement of those poems in the piece.

My poem was entitled **Dim Tim and the Macrocosm** (Dim Tim being the name of a kitten that I had recently met). To my intense surprise a cat turned up on the recording at Philip's end, miaowing during the reading of *his* poem and jumping up on his tape recorder near the end of the session and turning it off (at approximately the time I was intoning 'Dim Tim'). This experience was quite uncanny. I am not sure what meaning or significance should be attached to it, beyond saying that the performance felt from my end strangely emotional generally, perhaps indicating the presence of archetypal activity.

The Rooftops Synchronous improvisation was followed in 1989 by recordings with Michal Murin and his performance collective in Bratislava, Czechoslovakia on May 1, 1989 (Mayday), and with Stephen Scott in Colorado Springs on October 1989. Both pieces were intuitive with no guidance as to style or content of the performance specified in advance. The

latter piece, **Transglobal Musings** included an eerie cross over of myself playing in a fairly open style of solo jazz piano while Stephen Scott tuned into a radio station broadcasting a jazz program with an Australian announcer. The collaboration with Michal Murin was devoid of any musical events that might even begin to suggest synchronistic activity, interesting as it was in a theatrical-political sense.

It was in early 1989 that I conceived the idea of creating performance pieces that involved an audience who could experience intuitive performances brought to them by radio(s) from different parts of the world. The first of these was **Simulplay I** (September 1989) which linked Jim Denley (flute) in Linz, Austria with myself (on piano and accordion) in the the ABC radio studios in Perth. Jim Denley was playing for a live audience with myself, somewhat delayed, coming by radio in the Brucknerhaus for Ars Electronica. I was joined by Caroling Henning, a work experience student, on plastic trombone. For this performance, a timing scheme was devised, whereby Jim could hear me, but I could only hear him periodically, so the relationship between the two musicians was partly interactive and partly intuitive. Because **Simulplay I** is partly interactive it falls outside the scope of any analysis for synchronistic activity.

III. *That Time (Simulplay II)*: Specifics

That Time (Simulplay II)[3] is an intuitive piece for two musicians on opposite sides of a continent, playing at the same time, but unable to hear each other. There is no prior consultation as to the style or content of the piece. The two performances are transmitted by radio signal and landline to a concert audience listening via two separate broadcasts in one location. The two 'absent' performers - who can't hear each other - are brought into a performance space for an audience which experiences both of them. The two radio sets take on a theatrical 'performing' role.

More specifically Ryszard Ratajczak played double bass in Studio 210 of ABCFM Sydney from 11.00pm - 11.27pm on the night of October 9, 1989 while I played piano and prepared piano in Studio 21 of ABCFM Perth between 9.00pm and 9.27pm of the same night. Ratajczak's performance came via land line and mine via 6UVS FM to two radio sets in a room at the Perth Institute of Contemporary Arts (PICA), where an audience of some thirty people had gathered as part of the Artrage Festival.

Simultaneously, my performance was being sent by satellite to Sydney ABCFM and Ratajczak's was going live to air on ABCFM's programme *The Listening Room* in Eastern and Central Australia at 11.00pm, and two hours later on delay in Western Australia. In this regard the performance of **That Time (Simulplay II)** at PICA ('unencumbered by musicians') was unique to that audience and venue.

Insofar as its outcome in performance could not be foreseen, **That Time (Simulplay II)** was and is an experimental piece.

From the perspective of the musicians and the audience anything could happen. So it is surprising that what does happen is so orderly, so complementary and cohesive. The following general considerations may well have had an influence.

That Time (Simulplay II) presents an 'impossible situation' for the performers - a limiting case where the ordinary channels of communication are closed. My sense is that this has a profound psychological impact on the performers rather like that described by F. David Peat as 'The Gambler'.[4]

"An extreme example of the release of psychic energy occurs with what Jungians call 'The Gambler', the person who must risk everything on the turn of a metaphoric card. In many cases a patient is at the end of his or her tether with all resources exhausted and no hope remaining. In symbolic terms this is not unlike the person who has reached the final door in a castle, who has one magical wish left, who faces a dragon, or who is on the point of death. In such circumstances all the energies are focussed and concentrated upon the final turn of a card and synchronicities are bound to occur."

Technical problems with the lines, and the clear and irrevocable sense of not being broadcast at all, engendered a kind of resignation on one hand and a desperate energy on the other. This may have tapped into the kind of archetypal realm of 'The Gambler'.

My sense too is that in this kind of intuitive piece the musicians are subconsciously straining to communicate across a great distance. This is something like the situation in C19th America where Chinamen, working as virtual slave labourers, would dig a hole in the earth 'towards China', get into it, call out to China as Mother and send messages home[5]. Perhaps in a way the great isolation and sense of distance to be 'overcome' activates deep levels of the psyche and puts the musicians in touch with those realms of the collective unconscious where synchronicities are likely to occur.

I hope that the foregoing considerations can count against the objections (to enterprises like **That Time (Simulplay II)**) that are couched in such terms as "Might as well just tune into a couple of different radio stations and leave them both on".

The challenges thrown up by the 'impossible situation' of no communication, isolation and distance may have helped the musicians tap psychologic resources normally unavailable, and this in turn may have created 'an atmosphere' where synchronistic events could occur.

Then there is the issue of Ryszard Ratajczak's and my long shared background in free improvisation, going back to 1981. We would play and record regularly, and during 1981 we performed in a short lived group which played at the Perth Jazz Society. In 1985 and 1986 we played together in the two Perth Festivals of Improvised Music and recorded **Another Time**[6] after the second of those festivals, in April 1986.

It was certainly Ratajczak's extraordinarily free and imaginative use of the double bass, and as he termed it, his 'sonoric' language which drove me to explore the inside of the piano for sonorities that would match and complement the sounds he could draw from the double bass. These effects were then

incorporated into my solo playing and from there I gradually moved into using more and more prepared piano, especially in solo works (**Temple of Joyous Bones**, 1985). The outcome of this was the use of prepared piano in **Another Time** (1986). After that recording we did not play together until 1989 (**That Time (Simulplay II)**).

Against this background of interaction it might be argued that we shared a common language and that there were bound to be echoes, overlaps and 'synchronicities' everywhere. There is some justice in this charge. However, for the performance of **That Time (Simulplay II)** I used for the first time two pianos (one prepared, one unprepared) to be played at the same time, and strove for a much more variegated language and expressive range than hitherto, as I sensed, or thought I sensed, and increasing bulk and power in Ratajczak's playing during the period when I had not seen nor heard him. What turned out to be the case was that his playing, at least on **That Time (Simulplay II)** was a great deal more minimal, even tonal at times. Whereas formerly his improvisations had proceeded virtually without a break, now there were silences here and there: now too, the unrelenting fury had given way to a more lyrical approach. I am not sure what his expectations of my performance style were.

Is **That Time (Simulplay II)** synchronistic? In terms of Progoff's idea:[7]

"When two or more events take place at a given moment of time without either having caused the other but with a distantly meaningful relationship existing between them beyond the possibilities of coincidence, that situation has the basic elements of Synchronicity. Events of this type usually involve different individuals or groups."

There seem to be meaningful arrangements of musical events **(Simulplay II)** which cannot be adequately accounted for by a causal explanation. Whether the chance of such meaningful arrangements occurring goes beyond mere coincidence is not clear.

What are meaningful arrangements of musical events? For the purposes of the present discussion, the meaningful arrangement should involve the similarity or identity of elements that are

-melodic
-rhythmic or metric
-harmonic (with respect to chord, key or unification of musical activity around a single note)
-textural
-formal and structural

or combinations of these elements. With formal and structural elements are included synchronous silences and regions of the piece where the musicians 'impulsively' pick up the threads of a new development at the same time.

There are passages too where there seems to be a high degree of rapport between the musicians - dialogues, melodies with sensitive accompaniment and pseudo canons.

As Rowan Hammond points out in her analysis of **That Time (Simulplay II)**, from 5'44" to 15'06 (included on the following page), it is easy to hear the piece as synchronistic merely because the elements are so complementary. There is an easy blending of sonorities between the instruments in the first place, moreover, as in the first five and a half minutes, both instruments persist with a very narrow range of ideas, the bass playing a simple slowly-developing tremolo figure and the piano heavy broken chords interspersed with short melodic figures. The rhythmic constancy of the bass's tremolo rivets the textures together and the overall effect is extremely composed.

Perhaps this indicates some deeply co-operative and synchronistic connection between the musicians. However I have, like Rowan Hammond, been less inclined to take these disparate elements into account and have paid more attention to regions where there are more 'similar' elements in play.

Finally, I have only considered elements to be potentially synchronistic where they are synchronous or not separated by more than a few seconds. Even with these limitations there was a rich assortment of possibilities.

Hammond concludes her analysis by stating:

"The hardest aspect of analysing an improvisation such as **That Time (Simulplay II)** for synchronistic events is to try to ignore the classical notion of the complementarity of the two parts. Literally this means that the two or more parts join to make a whole, like the violin and piano parts which form equal halves of a violin sonata by Mozart or Beethoven. In detecting synchronistic events it is hard to ignore sections which occur and form a whole in this way; so it makes us question the meaning of a synchronistic event. Is it two similar events occurring simultaneously, or is it where, in music, two separate performers play complementary ideas which form a whole? This analysis has sought mainly to affirm the first question by looking in a detailed way at the most obvious section from 5'40" to 15'06" of the original and complete recording."

The section which seems to be most likely synchronistic is the glissando duet between 11'40" and 12'31". This unanimity of purpose continues into the section beginning at 12'31" when the bass line consists of a highly lyrical melody supported by the accompanying piano part, with many notes in common between the two parts.

The whole enterprise, especially between 7'12" and the 15'06" seems uncannily cohesive, with a sense that the musicians are taking turns to support each other and are responding to each other's impulse for change. In other words there is what we would ordinarily term to be meaningful musical activity.

The gullible and the credulous like myself will find that the connectedness is acausal and that the configurations are meaningful; sceptics are unlikely to be convinced and will point to the shared background and shared musical language of the two musicians. I leave this issue to the reader and to the debate that this article will hopefully engender.

That Time (Simulplay II)

Analysis by Rowan Hammond

Piano

5'44" Piano solo encompasses a large range. The heavy chords from the beginning are still present. The style is lyrical and legato.

6'27" More percussively used here with low, short notes prepared beginning to be introduced.

6'45" (Short, low notes become more dominant and seem to echo the pizzicati of the bass.) More prepared notes are introduced and this increases the percussive nature of this section.

7'12" After the previous section fades out the piano begins a gradual acceleration which reaches a steady 'plodding' rhythm.

Both instruments adhere to the same conductable pulse set up by the piano.

7'50" The regular rhythm decays and is replaced by short phrases separated by small silences. Both instruments play in short bursts, mostly together.

8'16" An upward glissando signals the beginning of the bass solo.

The piano accompaniment, particularly after the initial section, when it moves into a much higher register, is almost minimal and provides good contrast to the bass solo.

In the higher register more prepared notes are used.

10'07" The first notes in the lower register, coupled with the short silence, seem to occur in the gaps between the bass pizzicato and arco notes.

10'56" Glissandi introduced

11'40" The piano part uses mostly the prepared notes which gliss upwards after the initial attack.

This is a similar sounding idea to the bass glissandi. These prepared notes are mostly high in pitch and complement the bass part. There is also an amount of 'noise' associated with the prepared notes, so this is also similar.

12'30" Chords and notes similar to those in the previous section coincide with important notes in the bass melody. At the climax of this solo, after the staccato low note, the piano drops out completely as if to allow the bass to be more expressive. The piano re-enters with short groups of fast notes which build in dynamic and speed.

These groups seem to gather momentum until the piano is playing almost continuously. Many prepared notes are used here.

13'41" A prepared 'pedal' is set up in the left hand while the right hand repeats a much used motif three times. After the third time, the piano plays the resolving trill.

The introduction of the foreign notes into the bass part acts as a signal for the piano to introduce extra notes as well. The new set of pitches is then repeated with an acceleration and deceleration which leads on to the next section.

15'06"

Double Bass

5'44" Not playing.

6'27" Double bass joins in with pizzicati.

6'45" As before - percussive and more 'busy'.

7'12" The bass fits in with this rhythm and cross syncopations result between the parts.

7'50"

8'16" The bass is dominant here. Pizzicato two-note chords with sustained, wide vibrato are an obvious feature of the totally pizzicato solo. Although the piano's minimal accompaniment provides contrast, the bass solo also involves similar repetition of limited pitches and ideas.

10'07" Arco notes are introduced again in this extensive bass solo. Very fast tremolo-like bowing is used to play notes from a wide pitch range.

10'10" Glissandi introduced.

11'40" The bass part suddenly changes to rapid glissandi up and down, one string at a time, on harmonics. They seem to consist of chords of harmonics with some low noise. Occasionally the bass rests on single 'real' notes (as opposed to harmonics) and these seem to foreshadow the next section.

12'30" Suddenly the style changes to a slower, much more lyrical melody which is suggestive of Max Bruch's **Kol Nidrei.**

After this climax, the re-entry of the piano signals the descent of the bass melodic line.

The bass introduces a wide vibrato note which then gradually disappears to be replaced by isolated bowed notes.

13'41" A bowed harmonic glissando marks the beginning of this section.

Two low, and very resonant bowed notes, played after the first and second repetitions, seem to act as 'dominants' to the surprisingly tonal harmony here.

On the third repetition, the bass glisses downward, corrupting the sense of tonality with the addition of foreign notes.

15'06"

(This section of That Time (Simulplay II) *appears on NMATAPE 9)*

Some compositional possibilities arising from *That Time (Simulplay II)*

The ABC has a policy of delaying the broadcast of programmes in Western Australia by two hours, so that programmes go to air 'at the same time', eg at 8.00pm throughout Australia, instead of at 8.00pm (EST) and 6.00pm (WST). This consideration, which exists for administrative convenience, enabled the audience of **That Time (Simulplay II)** to experience it as a 'live' performance at the Perth Institute of Contemporary Arts and then as an ABC radio programme two hours later.

As it turns out it is quite a simple procedure to get rid of the delay, or to have delay times other than two hours. This opens up the possibility of having performers in remote locations coming via landline(s) to an audience. At a given time, say five minutes later, a radio broadcast of their playing could overtake the performance being transmitted by landline and whole sets of possibilities for (ironic) cross reference and commentary can be set in motion.

Radio stations have a built-in delay for talkback programmes of 7 seconds. This allows an additional and more refined sliding scale of differentiation between performance times and seems an effective way to set up canonic possibilities especially where musicians are performing 'material in common'.

Imagine a number of radio stations in different part of the world with different delay systems, for example, one that takes 5 minutes before a full 7 second delay is operating, another taking 3 minutes and so on. In this way a variety of canonic and similar processes can be engineered without the musicians having to hear each other to make it possible.

On a smaller scale there is a transmission delay of one quarter to half a second when satellite resources are used in broadcasting. If a precise timing plan for performance is followed, a humourous attempt at simultaneity can be set up and a vague ballet of rhythmic 'interactions' becomes possible.

The foregoing suggests the possibility of displacing audiences in both time and space so that they can experience different aspects of a radiophonic performance. Each of these displacements gives the audience a unique but incomplete or distorted account of the whole piece. (Indeed, where transmission delays are a necessary factor, all accounts of the piece are incomplete or 'imperfect'.)

An example: a radio audience in Vienna hears only the input of musicians being broadcast from Perth and Melbourne for the first half of a performance. In the second half local musicians are heard along with those being broadcast from Australia. In Australia the reverse of this procedure operates: for the first half of the performance the radio audience experiences the musicians from Austria and in the second half they are joined by the local musicians (who during the period that they have been inaudible in Australia, have have been broadcast in Austria).

Within a particular radio station the audience could move from studio to studio to experience different aspects of the piece, likewise in a performance space with landline and radio facilities.

A rich possibility exists in having individual musicians come to radio stations on an interactive grid and add their contribution. This in turn can be re-broadcast and then supplemented by other musicians coming in at other points on the grid.

In these contexts some of the compositional decisions boil down to dealing with issues like, at a given time, who is playing and who can hear them: which parts of the beast are exposed and which parts are hidden.

An alluring notion: what is the piece when the transmission delays and various occlusions are taken out? Is it possible to (re)construct it with all its elements precisely in place and in time? Suggestion: tape record each musician at source starting with a precise countdown to begin. Collect the tapes, synchronise and mix them.

Allowing for variable tape speed and human error we might be getting closer to a kind of Platonic form of the piece (which could then be compared with its local imperfect manifestations at various points on the grid).

Compositional decisions largely involve the manipulation of radiophonic resources rather than a 'notes on the page' account. This leaves the musicians largely free to make their own decisions either in interaction (collision) with other musicians that they can hear, or intuitively during periods when they are playing without being able to hear others.

Some general remarks concerning synchronous improvisations.

i. If orderly (or disorderly) engrossing music can be created without the performers having to hear each other, then we can have a change from the rituals of 'live' performance. In this way new occasions, new ceremonies can be developed with radios, televisions, videos and telephones in spaces unencumbered by musicians.

ii. The audience determines its own structures, developments and resolutions in works like **That Time (Simulplay II)**, and I suspect that the mind hungry for order finds it everywhere (as the foregoing discussion of **That Time (Simulplay II)** shows). In this way traditional notions of structure, all those elements that are consciously used to 'unify' a piece or to give it form, can be dispensed with. (Most of these have hardened into cliche (the knitting patterns of serialism) and, at best, can be put to sardonic use.)

iii. I suspect that the passion for overcoming distance and separation (as in devising and participating in simultaneous improvisations in different parts of the world) may have its roots in the isolation and marginalisation of living in Western Australia, in a remote outpost. (My hobby is making long distance calls in the middle of the night). Devising and participating in Synchronous Improvisations could certainly be seen as a neurotic concern for connection with others where none would ordinarily exist (I am here, they are there: I am there, they are here). I am reminded of Donald Holmes' comment - "Synchronistic events are an invasion of privacy."

iv. In considering **That Time (Simulplay II)** I have dwelt at inordinate length on its orderliness. If the result had been wildly disorderly, it would have been truer to the way things seem - fragmented, disappointing and uprooted (with bursts of abandon).

v. "Chances were that we would find the performance to be wildly chaotic. What a surprise to dis-

cover it orderly". Most of the talk of orderliness trades heavily on traditional notions of symmetry and patterning (melody and accompaniment, complementarity and similarity of textures and the like). In itself that is disappointing and, given how we have been encouraged to listen to music, no surprise at all.

vi. Suggestion: why not try shifting the recordings of simultaneous improvisations so that one starts a minute or five minutes later than the other? What effect does this have if any, on the feeling that the piece is synchronistic? (**Pocket Sky**, October 1991).

vii. We could record for an undefined period at an undefined time and then later mix the results on tape. Perhaps synchronistic events, if they occurred, would have a pre-cognitive hue.

IV. Metaphors and the creation of Barraca

Thus far we have dealt mainly with analytic and investigative elements of Synchronous Improvisations, but these are, and should be, subservient to the creative aspect of the work. 'Synchronistic Event' is a 'magic thought', a metaphor designed to invest these occasions with a focus and to raise energy and expectation in the audience and the performers. For the performers it is an 'impossible' situation; there is nothing they can do to *cause* synchronistic events to happen, all that can be done is to gather at the appointed time and place and play. Some ceremonies might help to create the appropriate climate in which synchronistic events can occur. In this context 'starting at the same time' and 'playing for thirty minutes' are ceremonies, and exist to impose form and raise anxiety. (*Play right now*). It focusses attention on the moment. (*How can we meet if not in the moment?*) I have sensed that beyond the convenience of knowing when to book the studio, when to have the audience seated and when to synchronise the tapes, having the performances set up as *synchronous* is a subtle (and perhaps futile) attempt to 'invoke' an atmosphere in which synchronicities might occur.

This kind of work involves the overlaying of individual times and lives like those layers of transparencies that occur in anatomy books. In a way distance shrinks to a virtual vanishing point. From this, a new entity is created out of (what was) 'same time' (synchronous) experience. 'Same time' experience is embodied and given new form on tape.

Beyond the straightforward associations with clock time (we begin at 3.00pm and finish at 4.00pm) the notion of the 'same time', is like the opening to a labyrinth of associations. The 'same time' is 'slow time' to one : to another 'party time'. There are times of clock watching excruciation and times of timeless enjoyment of company, there is now and then an hour which as Baudelaire says "is not merely an hour. It is a vase filled with perfumes, sounds, plans and climates".[8]

The overlaying of times and lives (through music and speech) is the combining of these regions of famine and richness which then in themselves change each other in the creation of new forms. New and unsuspected relationships are established.

For me to consider 'same time' within the context of one life rather than several, brings me to Borges' experience of the timeless in a nameless, humble suburb of Buenos Aires. This experience is in turn the critical element in a complex of synchronistic experience based around the word *Baraaka (Baraka, Barraca, Barracas)*. Whereas hitherto we set up musical situations as a net for possible synchronistic experiences, now the terms are reversed and the synchronistic experiences become the ground for the creation of the music. To make this clear it is first necessary to tell the story of Baraaka.

A tango band comprising violinist Angela Dillon, double bassist Andrew Tait and myself on accordion was formed primarily to play the tangos of Astor Piazzolla, the Argentinian bandoneon master and composer of innumerable tangos. (Additionally he is one of the pioneers of New Tango (Tango Nuevo) in his country). One problem that beset the band was its lack of a name. A fellow musician, Kavisha (Paola) Mazzella stepped in to resolve our doubts with the suggestion that we call ourselves Baraka (this became Baraaka, as we wished its pronunciation to be obvious).

Baraka is an Arabic word which is richly connotative of both mystical and musical energy. Two extracts from an article in Rolling Stone magazine entitled **Into the Mystic** by Robert Palmer, give something of the power of the notion of *Baraka* in its religious and musical contexts:

"Now the enormous speaker of the Mosque Mohammed V Crackle and the honey voiced Muezzin's cantillation of verses from the Koran ricochets off the white walls of the city quieting the dogs. The chanting forms a sonic grid that focuses or perhaps completes the City as Ideal Form:

"The community of the faithful is being irradiated by harmonics of degree and distance. Tangier's cunningly balanced architecture of surfaces, arches and crenelated towers serve as a kind of transformer of the spiritual energy of the Muezzin's call.'In Morocco there are different kinds of electricity. This kind is called Baraka, a kind of psychic current that certain holy places, sounds and people absorb and hold like storage batteries..."[9]

The musical sense of *Baraka* as it fuses with the mystical in Palmer's story is expressed in the ritual music and dance of the Master Musicians of Joujouka. As Palmer puts it:

"Joujouka has been a hot spot in the world's spiritual geography since earliest antiquity; the hills around it are dotted with Phoenician temple ruins. In a sense the Master Musicians were reconnecting with some of their deepest roots...The rites practiced in Joujouka have to do with fine-tuning or equalising the male-female polarities of the Old Earth's spiritual change. The whole mountain top is said to be one great storage cell for baraka".[10]

The article culminates with Palmer's mystical experience, of which *Baraka* is an element. It is too long an account to quote here but it gives some taste of the powerful spiritual and musical associations of the word in Moroccan culture.

Soon after Baraaka's first gig I found out the

Spanish meaning of Baraaka ('Baraka') - *Barraca* means shack, shed, hut or barracks in Spanish.

During the same week I began composing a tango entitled **Labyrinth** in the style of Astor Piazzolla, to be played by Baraaka. The working title **Labyrinth** is a reference both to its structure and to the title of Jorge Luis Borge's collection of beautifully crafted tiny stories, parables and essays.

I also began collecting references for this article on music and synchronicity and recollected that Borges had an essay entitled *A New Refutation of Time* dealing with the simultaneous experience of an event in the past and the present. This linked up thematically with the idea of synchronicity (and had a more than passing resemblance to Swann's experience of time past and present in Proust's **A La Recherche du Temps Perdu**). I suspected that Borge's essay is in the collection entitled **Labyrinths**.

I went to the Alexander Library only to find that they didn't have it on their computer catalogue and nor, I suspected (correctly) did the suburban branch libraries. Resigned to having to order the book from overseas or chase it down among friends I continued to work on the tango composition **Labyrinth**. A few days later I found the book at the Inglewood Library (this overrode the strong doubt I felt ... "After all I had checked the catalogue"...)

I opened it to the essay *A New Refutation of Time* and found Borge's account of his experience of eternity in the humble streets of a suburb not far from where he grew up. Looking on a street of low houses indicating both poverty and contentment he writes:[11]

"I kept looking at this simplicity. I thought, surely out loud: This is the same as thirty years ago... I conjectured the date: a recent time in other countries but now quite remote in this changeable part of the world. Perhaps a bird was singing and for it I felt a tiny affection, the same size as the bird; but the most certain thing was that in this now vertiginous silence there was no other sound than the intemporal one of the crickets. The easy thought "I am in the eighteen-nineties" ceased to be a few approximate words and was deepened into a reality. I felt dead, I felt as an abstract spectator of the world; an indefinite fear imbued with science which is the best clarity of metaphysics. I did not think that I had returned upstream on the supposed waters of Time; rather I suspected that I was the possessor of a reticent or absent sense of the inconceivable word eternity".

He goes on to define the experience:

"...That pure representation of homogeneous objects - the night in serenity, a limpid little wall, the provincial scent of honeysuckle, the elemental earth - is not merely identical to the one present on that corner so many years ago; it is, without resemblances or repetitions, the very same. Time, if we can intuitively grasp such an identity, is a delusion: the difference and inseparability of one moment belonging to its apparent past from another belonging to its apparent present is sufficient to disintegrate it."[12]

The suburb in which Borges (or his protagonist) experiences the timelessness where past and present experience are utterly indistinguishable, utterly the same, is not named: but the suburb in which he spent the afternoon was *Barracas* - "a locality not visited by my habit and whose distance from those I later traversed had already lent a strange flavour to that day".

I later learn that *Barracas* is a port suburb of Buenos Aires where it is commonly thought that poor immigrant workers in the late nineteenth century developed the tango. Barracas in this context literally means 'sheds' referring to the huge storage sheds for storing wool and wheat.

Finding Barracas (the word and the place) in Borge's *A New Refutation of Time* was like discovering a new star in a familiar constellation. Seen one way *Barracas* gathers up and completes the maze of tango associations (Astor Piazolla and *Baraaka* as well as enfolding the **Labyrinth Tango** on which I was working in my back shed (*Barraca*)); seen another way, Barracas illuminated the themes of time and eternity in Borge's essay from the odd angle of "It's distance (from the unnamed suburb where he encounters the experience of timelessness in the evening) had lent a strange flavour to the day".

I had accepted the obscure invitation of a tiny labyrinth in my search for **Labyrinths** in whose maze I hoped to find an account of the fusion of past and present as an example of synchronous experience. What I got from the discovery of *Barracas* was a synchronistic experience illuminating two major areas of my creative life as well as the cluster of friendships and working relationships that are concentrated around the performance of Astor Piazzolla's tangos.

Further down still, *Barracas* gathers in the primal image of Baraka with its complex of powerful spiritual and musical energies; and Barraca, Baraaka and Baraka are all illuminated in the same light and run through with the same skewer.

As a pedant it's interesting to note that Piazzolla has written a tango-based score to a dance piece based on Borge's stories, entitled **The Rough Dancer and the Cyclical Night**, and that Borges has written a history of the Tango where he argues that it was born in the brothels of Buenos Aires between 1880 and 1890, casting doubt on Barracas being the birthplace of the Tango. The issue is unresolved at the time of writing...[13]

Borges might have appreciated the foregoing tiny labyrinth running in and out of his volume **Labyrinths**. Apart from the large and clearly signed labyrinths of stories like *The Garden of Forking Paths* and *Death and the Compass*, the essay *A New Refutation of Time* contains its own 'maze of metaphysics' with its 'author' lost in it. There is also a reference to a string of his earlier attempts to refute (the idea of) time for which his essay is meant to provide a basis (another kind of minor labyrinth within the essay).

Borge's **Labyrinths** with its own labyrinths gave birth to my own labyrinth of Baraka and its associations with tango and time.

This clustering of events resembles what Mendilow terms *points de répère*, moments of experience when past, present and sometimes future time are brought into contact; where "the gleaming pin points

of time gather together the fragmentary impressions and straggling associations of life and give them value."[14]

Jung gave credence to a similar clustering of events in his own lifetime. One such clustering involves the motif of the fish:

"... In many European countries April 1 is referred to as April Fish Day. On that particular day Jung happened to be working on the symbolism of the fish and when his patient arrived Jung was shown a picture of a fish and a piece of embroidery with a fish on it. On the following day another patient told him of a dream of a large fish that had occurred the night before. While writing down these accounts Jung went for a walk beside the lake and saw a large fish."[15]

Jung himself gave prominence to this pattern of fishy occurrences which to others may seem like simple coincidences. Their importance for Jung arose from the strong sense of meaning they had for him.

The Baraka Labyrinth cluster had a similar change of meaning and value for me, not only illuminating the past (lights suddenly flaring further back down the labyrinth) but also suggesting the possibility of a deeper investigation in the future. By sensing the underlying pattern I realised that it could become a source, a metaphor out of which a piece could be generated. Whereas I had set up **That Time (Simulplay II)** as a net for synchronistic events, this time I could use a cluster of synchronistic events as a net, a metaphor out of which a piece could be generated.

Synchronistic events come unbidden. They cannot be brought about by deliberate purpose; nevertheless, psychologists such as Progoff and Bolen have indicated that certain psychological states and atmospheres are conducive to the occurrence of synchronistic events:[16]

"(Meaningfulness in a synchronistic context exists in) the restructuring of situations across time and beyond causality in terms of the re-ordering element at the depth of the psyche.

"The manner in which this meaning for restructuring takes place is elusive, primarily because it cannot be brought about by deliberate purpose. Atmospheres can be set up in which it becomes more possible for it to happen, but no definite script can be written in advance, since causality is not involved in it."

Again, referring to individuals who had better than chance scores on the Rhine ESP experiments, Progoff notes that the interest that the person took in the test and the sense of relationship that they felt towards the experiment as a whole were important factors in them scoring better than chance. He goes on:[17]

"On the whole, those persons who entered into the experiments with a belief in the value of the work and especially with a hopeful attitude for the success of the tests, tended to have better scores. They apparently contributed something of their own psychic selves to the work."

In the light of these remarks, ceremonies will be devised to heighten the experience of performing a current work, **Pocket Sky**, and as far as possible provide the appropriate 'atmosphere' for its performance.

These ceremonies will include:

i. The performance of **Labyrinth Tango**, a composition whose form and context is derived from a synchronistic experience involving its performers. This will serve as an invocation to **Pocket Sky** and hopefully will sensitise the audience to the events which follow.

ii. Keeping a diary and noting any synchronistic events which occur during or around the performance itself. My hunch is that when a net is set up for synchronistic events to occur, they are more likely to occur just outside the net (as when children digging underground cubbies cause cave ins nearby). This diary additionally can be used to record dreams and waking fantasies connected with **Pocket Sky**.

iii) Consulting the I Ching and then using its divinations as part of the performance. As well as being an ancient source of wisdom in areas as diverse as farming, psychology and good government the I Ching functions as a labyrinth of synchronistic potentialities. In its divinatory role it connects the individual and the cosmos and reflects that situation in the moment of asking. The I Ching will also be utilised to create numerical orders which will generate notational elements in **Pocket Sky**.

iv. It is hoped that the foregoing ceremonies together with the special tensions amounting to 'impossibility' of the performance situation will create an appropriately nourishing environment for **Pocket Sky**.

v. Finally, the scored elements of **Pocket Sky** will be derived in part from elements in F. David Peat's metaphysics which has its roots in synchronistic experiences. In the broadest terms he expresses the relationship that he established between synchronistic experiences and the theory of reality as follows:[18]

"Reality... is pictured as a limitless series of levels which extend to deeper and deeper subtleties and out of which the particular explicate order of nature and the order of consciousness and of life emerge. Synchronicities can therefore be thought of as an expression of this underlying movement, for they unfold as patterns of thoughts and arrangements of material processes, which have a meaningful conjunction when taken together.

"But in fact, it is the essence of this whole vision of the universe that synchronicities in themselves are no longer unique, for a similar complexity is enfolded within each element of matter, each region of space time and within the consciousness of each individual."

The notion that each element enfolds and encodes all reality within itself is at the centre of a mystical vision of reality. We find it in St. Thomas Aquinas's *tota simul existens*, where the (eternal) present contains all moments both past and future;

we find it in David Bohm (on whom David Peat leans heavily in making use of Bohm's enfolded and unfolded implicate and explicate orders).

"As with consciousness each moment has a certain explicate order, and in addition it enfolds all the others, though in its own way. So the relationship of each moment in the whole to all the others is implied by its total context: the way in which it 'holds' all the others enfolded within it."[19]

In the Zen Buddhist tradition there are similar themes which can be summed up as 'Eternity is in the now', or in the most general terms, 'The Universal is in the Particular.' This sense is conveyed in William Blake's verse:[20]

> To see world in a grain of sand and a heaven in a wildflower.
> Hold infinity in the palm of your hand and eternity in an hour.

And more particularly from the tradition itself in Dogen's lines:[21]

"Enlightenment is like the moon reflected on the water. The moon does not get wet, nor is the water broken. Although its light is wide and great, the moon is reflected even in a puddle an inch wide. The whole moon and the entire sky are reflected in dewdrops on the grass, or even in one drop of water...

"The depth of the drop is the height of the moon. Each reflection, however long or short its duration, manifests the vastness of the dewdrop, and realises the limitlessness of the moonlight in the sky."

A similar insight is there in Leibniz's monads, each of which is "a perpetual living mirror of the universe" and in Jung's own cosmology especially as it is vested in his account of Synchronicity.

One kind of musical 'analogy' for the foregoing that could provide a beginning for experimentation is as follows:

A. Devise a short theme which is composed of the notes which are the successive pitch centres of the composed sections of **Pocket Sky**. Say A flat, G, B flat, A (this encodes the whole).

B. Sample A flat, G, B flat, A and then trigger it by the successive notes of a longer theme, say that of the **Labyrinth Tango** (the whole enfolded into individual units).

C. Sample short elements of the **Labyrinth Tango** theme which already contain the A flat, G, B flat, A and then trigger these samples by replaying the theme of the **Labyrinth Tango** (second level of enfoldment). This progress can be continued ad infinitum.

D. Sample the words 'Eternity is in the now' and have it triggered by playing **Labyrinth Tango** theme.

E.Counterpoint D with elements of B and C and set this against spoken or sung text (for example the quotation from Dogen earlier).

What is likely to result is a highly complex electronic account of 'the universal within the particular', set against its clear statements in spoken or sung forms. Plenty of opportunities for (ironic) juxtapositions should result.

The kind of metaphysics based on synchronicity, that F. David Peat proposes, suggests that at the deepest level all human experience is synchronistic (and that normally we catch only the odd sparks of a great fire). Perhaps these investigations may help those involved to warm their hands a little near the rising and the falling flames (or better burn these pages for a moment's warmth).

Footnotes

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